Statement of Common Ground between Cannock Chase District Council, City of Wolverhampton Council, Dudley Metropolitan Borough Council, East Staffordshire Borough Council, Lichfield District Council, Sandwell Metropolitan Borough Council, Stafford Borough Council, South Staffordshire District Council, Walsall Council and Natural England in relation to air quality.

4th December 2024

Introduction

1. This Statement of Common Ground (SoCG) has been prepared by Cannock Chase District Council (CCDC), City of Wolverhampton Council (CWC), Dudley Metropolitan Borough Council (DMBC), East Staffordshire Borough Council (ESBC), Lichfield District Council (LDC), Sandwell Metropolitan Borough Council (SMBC), South Staffordshire District Council (SSDC), Stafford Borough Council (SBC), Walsall Council (WC) (the partner authorities) and Natural England (NE), hereafter referred to as "the parties" to support the partner authorities emerging Local Plans.

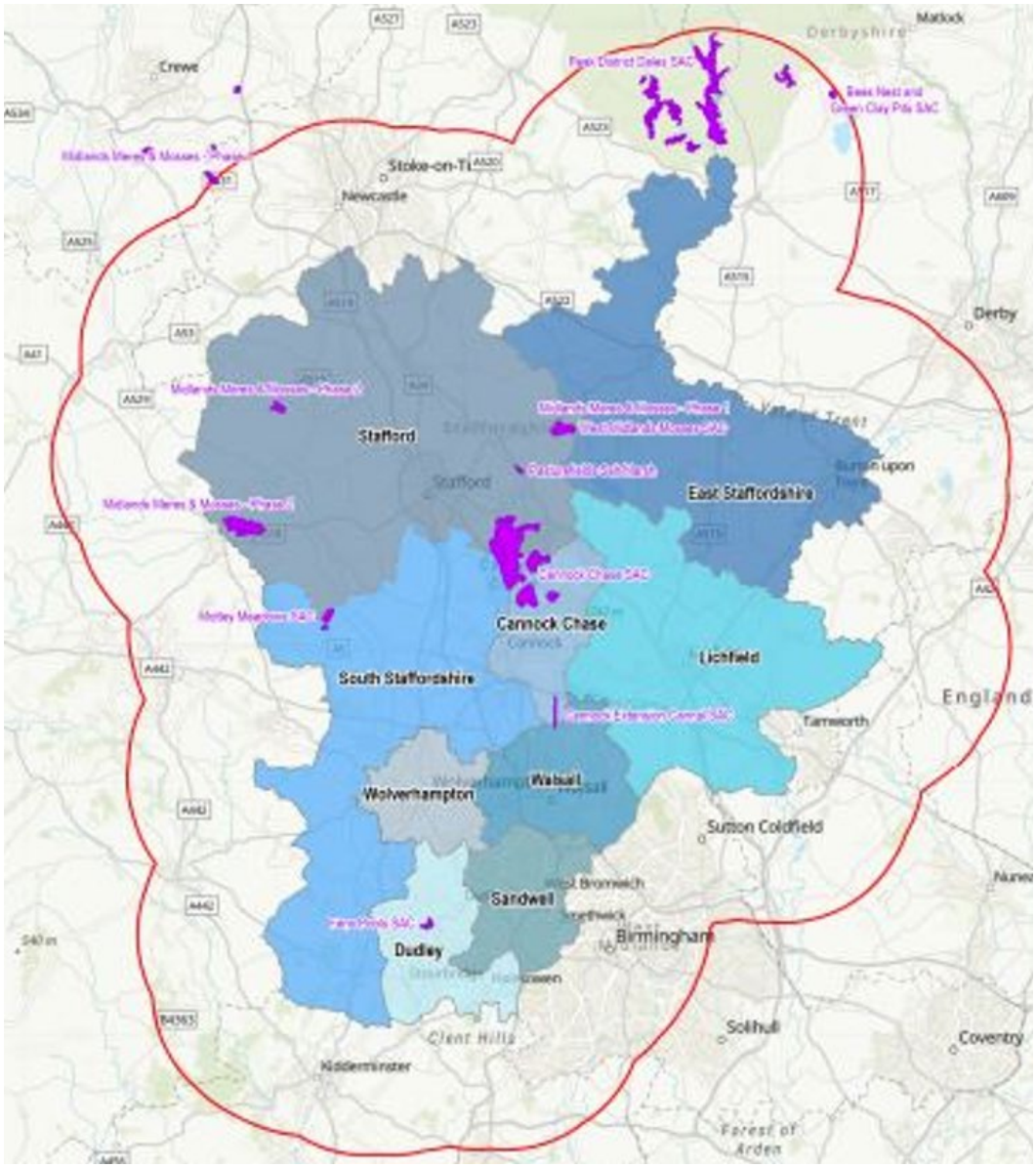
2. This SoCG relates solely to impacts regarding European designated wildlife sites[1] from deterioration in air quality[2] due to increased traffic from local plan development, which is a strategic matter affecting all the partner authorities. Other matters raised by NE in relation to individual authorities' Local Plans will be considered through separate bilateral SoCGs between NE and the authority, where necessary.

3. The potential adverse impacts of air pollution on European Sites have been identified as an issue for a number of years. The partner authorities whose Local Plans are most advanced and have undertaken Regulation 19 consultation (CCDC and SSDC) have, to date, been unable to rule out adverse effects in relation to air quality from vehicles on relevant European Sites through their Habitat Regulations Assessment. This is due to a lack of transport and air quality modelling evidence to confirm whether air pollution arising from the local plans causes an adverse effect on site integrity (AEOSI), due to exceedance of critical levels and / or critical loads at the European Sites from air pollution. This has led NE to conclude that these Regulation 19 Local Plans are not sound or legally compliant as those European Sites in the area of search with features sensitive to air pollution, adverse effects on their integrity, alone or in-combination, cannot be ruled out due to a lack of evidence. This SoCG sets out the work that has been, and is continuing, to be undertaken to address this issue.

Geography covered by the SoCG

4. This SoCG covers the geography of the nine partner authorities as shown on the map below; the red line indicates the air quality study area.

[1] Specifically Special Areas of Conservation (SACs) and Ramsar sites underpinned by Site of Special Scientific Interest (SSSI) designation in England.
[2] Comprising nitrogen oxides (NOx), ammonia (NH3), total nitrogen deposition and acid deposition.



Background

5. The interest features of a number of European Sites in and around the partner authorities' geography are recognised as being sensitive to increased air pollution.

6. Any new development could increase air pollution on European Sites directly or indirectly. The two main ways this can occur are:

    - By emissions arising directly from the development during its operational life (i.e. industrial units, livestock housing units, energy generation etc).
    - By indirectly resulting in a significant increase in the scale of vehicular movements on roads within 200m of a European site (this increase in

vehicular movement may occur both in the construction and operational phases of the development).

7. Since being made aware of the potential issue in 2019, the Cannock Chase SAC Partnership[3] has undertaken a number of actions to ascertain the impact of NOx emissions and their contribution to nutrient nitrogen deposition on the SAC designation to 2050.

8. In May 2020, the SAC Partnership proposed a strategic solution to the nitrogen issue; 'A road map to mitigation scheme'. Natural England was supportive of the measures the Partnership proposed, however could not provide an assurance that they would not object to any plans and projects for the 3 year 'grace' period needed to implement the 'road map' where increased nitrogen deposition resulted in an AEOSI of a European site.

9. The SAC Partnership agreed to commission evidence in the form of an air quality assessment to determine the likely scale of air pollution from vehicle movements on 6 European Sites over a 20-year period (2020 to 2040). Work was due to commence in early 2020 but this was delayed due to the Covid Pandemic. Data on NOx concentrations at appropriate locations has been collected monthly since October 2020 using diffusion tubes, with ammonia monitoring commencing on the same basis in 2021. Monthly monitoring of both pollutants continues to-date.

10. NE reviewed the data collected (alongside modelling predictions on the Air Pollution Information System) and were content that the NOx concentrations shown at the air quality collection points were below the threshold for concern. However, monitored ammonia concentrations were higher than modelling predictions. In addition, modelling predictions indicated that all six sites were receiving nitrogen deposition inputs above their critical loads.

11. It was necessary to establish if NOx emissions would remain under threshold once the proposed allocations in competent authority plans are factored in alongside proposals with consent or allocation in adopted local plans based

[3] The SAC Partnership is a partnership between organisations who have legal responsibilities in relation to the Cannock Chase Special Area of Conservation (SAC). The purpose of the partnership is to ensure that the ecological integrity of the SAC is maintained and all legal obligations in relation to the SAC are met. The Partnership is funded by mitigation contributions collected by seven local authorities from new housing development within 15km of Cannock Chase. These contributions fund both the Partnership and a series of works which mitigate the increase in recreational activity arising from new development. The SAC Partnership includes all partner authorities subject to this SoCG with the exception of Dudley MBC and Sandwell MBC.

on the precautionary principle, and whether the local plans would worsen the impacts of ammonia and nitrogen deposition.

12. In October of 2022, Middlemarch Environmental was instructed by South Staffordshire District Council (SSDC), on behalf of the nine partner authorities, to prepare a brief[4] to provide a detailed step-by-step methodology of how the partners could establish a scientific and robust evidence base to determine the likely air pollution impacts (both alone and in-combination) via increased traffic generation on several European sites as a result of Local Plan proposals coming forward. The brief (Appendix A) identified the European sites relevant to the partner authorities plans as follows:
    - Bees Nest and Green Clay Pits SAC
    - Cannock Chase SAC
    - Cannock Extension Canal SAC
    - Fens Pools SAC
    - Midlands Meres and Mosses Phase 1 Ramsar Site
    - Midlands Meres and Mosses Phase 2 Ramsar Site
    - Mottey Meadows SAC
    - Pasturefields Salt Marsh SAC
    - Peak District Dales SAC
    - West Midlands Mosses SAC

13. The Middlemarch brief was able to scope out the following sites for various reasons but in most cases due to there being no ‘A’ or ‘B’ roads within 200m of the boundary of the European site:
    - Aqualate Mere (Midlands Meres and Mosses Phase 2 Ramsar Site)
    - Bees Nest & Green Clay Pits SAC
    - Betley Mere (Midlands Meres and Mosses Phase 1 Ramsar[5] Site)
    - Black Firs & Cranberry Bog (Midlands Meres and Mosses Phase 2 Ramsar Site)
    - Chartley Moss (West Midlands Mosses SAC)
    - Mottey Meadows SAC
    - Peak District Dales SAC
    - Wynbunbury Moss (Midlands Meres and Mosses Phase 1 Ramsar Site)

14. This resulted in a recommendation for the following European Sites to be taken forward for detailed traffic and air quality modelling:

[4] Creation of an Air Pollution Evidence Base Brief to Support Local Plan HRA Staffordshire, Wolverhampton, Walsall, Sandwell and Dudley (March 2023)

[5] Ramsar sites are treated in planning as having equivalent protection of SACs and SPAs and are therefore included in this study. The Ramsar designation is underpinned by Site of Special Scientific Interest designation in England.

- Cannock Chase SAC
- Cannock Extension Canal SAC
- Cop Mere (Midlands Meres and Mosses Phase 2 Ramsar Site)
- Fens Pool SAC
- Oakhanger Moss Site of Special Scientific Interest (SSSI) (Midlands Meres and Mosses Phase 2 Ramsar Site)
- Pasturefields Salt Marsh SAC

15. NE were consulted on the Middlemarch brief in a letter dated 14 April 2023 (See Appendix B) and confirmed that "*it has been prepared in full accordance with Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations. We are therefore able to support the report's methodology and its conclusions*".

16. In August 2023 Sweco Ltd were appointed by SSDC (on behalf of the partner authorities) to undertake the traffic and air quality modelling in line with the Middlemarch brief. Following completion of the modelling, Sweco's draft assessment (Appendix C(i) and Appendix C(ii)) concluded that of the sites detailed in paragraph 14, only the four European sites detailed below were subject to air pollution exceedance:
    - Cannock Chase SAC
    - Cannock Extension Canal SAC
    - Fens Pool SAC
    - Oakhanger Moss SSSI (Midlands Meres and Mosses Phase 2 Ramsar Site)

17. A steering group meeting took place between the partner authorities, Sweco and NE on 11th September 2024 in order to discuss the assessment findings. At this meeting, the findings of the baseline report were agreed unanimously by the partner authorities and NE. At this meeting all four European Sites were discussed to understand likely impact(s) on the qualifying feature(s)[6] of the sites and potential mitigation, with a number of actions agreed along with a commitment to further meetings.

18. At a subsequent meeting held on 25th September 2024 it was agreed by NE that AEOSI could be ruled out on Fens Pool SAC. The site is designated for Great Crested Newts (GCN) which are not sensitive to air quality. Furthermore, it has been confirmed by Dudley MBCs Countryside Services Team that the ponds that GCN use for breeding are located away from the exceedance areas. It was also agreed at the meeting of 25th September 2024 by NE that Oakhanger Moss could be screened out after further analysis by

[6] As defined by the relevant SAC/SSSI citation documents.

Sweco demonstrated that the air pollution exceedance at the site was predominantly caused by national traffic growth outside of the air quality project area due to its proximity to the M6 motorway, and that air pollution directly resulting from the partner authorities was de minimis compared to national growth.

19. At a Steering Group meeting on 14th November 2024, Cannock Chase SAC and Cannock Extension Canal SAC were discussed in detail in relation to understanding whether adverse effects on site integrity were likely to occur or not.

20. In relation to Cannock Chase SAC, Natural England confirmed that they had reviewed maps that show the extent of the habitats on Cannock Chase SAC that are reasons for designation of the SAC within the areas of exceedance indicated by modelling; RAP01, RAP02 and RAP03.

21. For RAP01 most of the area is mapped as site fabric, as such adverse effects can be ruled out in this area. Some of the area is mapped as heathland, however the area that the exceedance falls within is immediately adjacent to the road and is predominantly woodland/trees. As heathland has a mosaic nature (which includes trees), and because the presence of trees near the road is likely to be buffering the SAC area behind from air emissions from the road, Natural England concluded that they would not wish to restore this area to heathland by tree removal. As such a conclusion of no adverse effects on site integrity can be made for RAP01.

22. For RAP02 the area of exceedance falls entirely within site fabric of the SAC, and therefore adverse effects on site integrity can be ruled out on that basis.

23. For RAP03 there is an incredibly small area of qualifying habitat in the exceedance area. NE advised that adverse effects to site integrity can be ruled out because the associated area of qualifying habitat within the area of exceedance is negligible.

24. Based on the information in paragraphs 20-23 inclusive, adverse effects to site integrity can be ruled out in relation to Cannock Chase SAC.

25. Regarding Cannock Extension Canal SAC, the document ‘Ecology of the Floating Water Plantain’ (Lansdown RV & Wade PM (2003), understood to be the authoritative document on floating water plantain in the UK, states that floating water plantain which is the qualifying feature of Cannock Extension Canal SAC is tolerant of a broad range of nutrient conditions. The plant is also the submerged phenotype along the Cannock Extension Canal SAC and so

direct deposition of nutrients to the plant are not likely to occur; particularly in relation to ammonia and NOx.

26. Natural England commented that the 'Ecology of the Floating Water Plantain' (Lansdown RV & Wade PM (2003) document indicates that floating water plantain can take some time to show responses to effects from additional nutrients, however it is likely that this would have been observed at the SAC given the prolonged presence of the A5 immediately adjacent to the Cannock Extension Canal SAC.

27. Based on the apparent high degree of tolerance of floating water plantain to a range of environmental conditions and nutrient levels, as well as its submerged nature at the Cannock Extension Canal SAC, it was agreed that a conclusion of 'no adverse effects on site integrity' could be drawn.

Areas of Agreement

28. The following matters are agreed between all parties to this SoCG:

- Constructive and ongoing engagement has occurred between all parties and the Duty to Cooperate has been met.
- The final Middlemarch brief and the detailed methodology to scope out the European Sites from further assessment (set out in paragraph 13 of this SoCG).
- That the transport and air quality modelling undertaken by Sweco has been produced in line with the Middlemarch brief and represents a robust assessment for decision making.
- That the evidence demonstrates air pollution resulting in exceedance of critical loads and / or levels is present at the four European sites set out in paragraph 16 of this SoCG, however adverse effects on site integrity can now be ruled out for the following sites for the reasons set out in paragraphs 18-27 of this SoCG:
    - Fens Pool SAC
    - Oakhanger Moss SSSI (Midlands Meres and Mosses Phase 2 Ramsar Site)
    - Cannock Chase SAC
    - Cannock Extension Canal SAC
- That the Sweco study evidencing traffic growth and resultant air quality impacts will need to be kept under review and revisited when future planned growth across the partner authorities' geography becomes more certain.

29. Areas of disagreement:

- None

Signatures

We confirm that the information in this Statement of Common Ground reflects the joint working to address identified strategic matters that has been undertaken between the parties. The authorities will continue to work together to address cross-boundary issues on an ongoing basis.

Natural England

Name:

Position:

Signature:

Date:

Cannock Chase District Council

Name:

Position:

Signature:

Date:

City of Wolverhampton Council

Name:

Position:

Signature:

Date:

Dudley Metropolitan Borough Council

Name:

Position:

Signature:

Date:

East Staffordshire Borough Council

Name:

Position:

Signature:

Date:

Lichfield District Council

Name:

Position:

Signature:

Date:

Sandwell Metropolitan Borough Council

Name:

Position:

Signature:

Date:

South Staffordshire Council

Name:

Position:

Signature:

Date:

Stafford Borough Council

Name:

Position:

Signature:

Date:

Walsall Council

Name:

Position:

Signature:

Date:

Appendices

Appendix A: Middlemarch brief

Appendix B: Natural England letter to partner authorities dated 14th April 2023

Appendix C(i): Sweco Report: Traffic modelling

Appendix C(ii): Sweco Report: Air quality modelling

Appendix D: Steering Group meeting minutes 11/09/24, 25/09/24, 14/10/24 and 14/11/24

MIDDLEMARCH

Creation of an Air Pollution Evidence Base Brief to Support Local Plan HRA

Staffordshire, Wolverhampton, Walsall, Sandwell and Dudley

A Report to: South Staffordshire District Council
c/o the Combined Partnership Authorities
Report Number: RT-MME-159172-01, Rev B
Date: March 2023

Middlemarch Environmental Ltd, Triumph House, Birmingham Road, Allesley, Coventry, CV5 9AZ
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Quality Assurance

Date	Version	Author	Checked by	Approved by
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25/11/2022	FINAL	Chris Walsh BSc (Hon), MSc (Hon) (Principal Consultant)	Dr Amanda Flint (Biodiversity Manager)	
11/01/2023	FINAL, Rev A	Chris Walsh BSc (Hon), MSc (Hon) (Principal Consultant)	Louise Fox BSc (Hon), GDP Law, MSc (Hon) (Principal Consultant)	Dr Amanda Flint (Biodiversity Manager)
10/03/2023	FINAL, Rev B	Chris Walsh BSc (Hon), MSc (Hon) (Principal Consultant)	Louise Fox BSc (Hon), GDP Law, MSc (Hon) (Principal Consultant)	

Declaration of Compliance

This study has been undertaken in accordance with British Standard 42020:2013 "Biodiversity, Code of Practice for Planning and Development". The information which we have prepared is true, and has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management's Code of Professional Conduct. We confirm that the opinions expressed are our true and professional bona fide **opinions.**

Disclaimer

The contents of this report are the responsibility of Middlemarch Environmental Ltd. It should be noted that, whilst every effort is made to meet the client's brief, no site investigation can ensure complete assessment or prediction of the natural environment. Middlemarch Environmental Ltd accepts no responsibility or liability for any use that is made of this document other than by the client for the purposes for which it was originally commissioned **and prepared.**

Validity of Data

The findings of this study are valid for a period of 24 months from the date of survey. If works have not commenced by this date, an updated site visit should be carried out by a suitably qualified ecologist to assess any changes in the habitats present on site, and to inform a review of the conclusions and recommendations made.

Non-Technical Summary

Project Background

In October 2022, Middlemarch Environmental were instructed by South Staffordshire District Council (SSDC) to prepare a brief; a detailed step by step methodology of how SSDC and one or more partnership Local Planning Authorities (hereafter referred to collectively as the 'partnership authorities') could establish a scientific and robust evidence base to determine the likely air pollution impacts (via increased traffic generation) on several European sites should emerging Local Plan/s be adopted.

Footprint Ecology's October 2022 Habitats Regulations Assessment (HRA) of the South Staffordshire Local Plan Review 2018-2038 (Publication Plan, Regulation 19) concluded that without additional evidence, and in line with the precautionary principle, the reasonable possibility of the proposed allocations resulting in traffic growth sufficient to have a significant impact upon several European sites via increased deposition of nitrogen (NO_x and NH_3) could not be screened out.

This work is, in the first instance, to support the undertaking of the Local Plan Habitats Regulations Assessment/s for SSDC, for which Footprint Ecology Ltd has already been engaged.

However, the evidence base that is to be established is planned to be sufficient (in its geographic scope and scale of considered in-combination traffic growth) to allow it to be used as an evidence base to support the HRAs of the other partnership authorities over several years, as proposed allocations within Local Plan/s move forward.

This brief does not consider traffic generation created as a result of agricultural development or their subsequent operations.

This brief clarifies in detail the European sites, road locations, methodology and thresholds by which further screening will be undertaken.

It is important to note that if the screening threshold for a European site is exceeded, this does not result in the conclusion that increased air pollution will have a significant impact upon the qualifying features of the European site, the habitats or ecological functions upon which the qualifying feature rely or else prevent or otherwise impede the delivery of the site/s conservation objectives. Rather, it displays that there is a likelihood of such an impact occurring and that an Appropriate Assessment must be undertaken to conclude if the level of atmospheric deposition of nitrogen (and the locations within the statutory boundaries where it is deposited) is likely to result in a significant impact upon the integrity of the European site.

For any European site where possible impacts cannot be screened out, this brief also outlines an approach by which an Appropriate Assessment can be undertaken to determine if the available nitrogen deposition volume and location is likely to result in a significant impact upon the integrity of the European site/s.

Natural England's consideration and input into this brief was sought and written comments were provided on the 8th of February 2023. Subsequently a meeting was held between Natural England and representatives of the partnership authorities on the 14th of February 2023 where further recommendations were provided. All recommendations and further considerations raised by Natural England have been incorporated into this revised Evidence Base Brief (Rev B).

The relevant European sites to be assessed are depicted in Drawing C159172-03 (see Map Annex RT-MME-159172-02). They comprise of all Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Ramsar Wetlands of International Importance land parcels where:

- The qualifying habitats or criterion for selection of the European site are known to be impacted by increased deposition of nitrogen;
- Increased deposition of nitrogen is known to impact on habitats on which the qualifying species or criterion for selection of the European site rely;
- The site is within the SSDC local plan area or the local plan area of another partner authority; or,
- The site is within 10km of the boundaries of these areas or has been identified by Natural England as requiring consideration.

The European sites considered within this brief are:

- Cannock Chase SAC;
- Pasturefields Salt Marsh SAC;
- West Midlands Mosses SAC;
- Midlands Meres and Mosses Phase 1 Ramsar Site;
- Midlands Meres and Mosses Phase 2 Ramsar Site;
- Mottey Meadows SAC;
- Cannock Extension Canal SAC;
- Fens Pools SAC,
- Peak District Dales SAC, and
- Bees Nest and Green Clay Pits SAC

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1. Identification of Assessment Locations

1.1. Introduction

1.1.1. The Department of Transport's Transport Analysis Guidance[1] states *"Beyond 200m the contribution of vehicle emissions from roadside to local pollution levels is not significant"*.

1.1.2. Additionally, section 5.3.7 of the Institute of Air Quality Management (IAQM) 2020 guidance on the assessment of air quality impacts on designated nature conservation sites[2] concludes *"For strategic planning, where substantial changes in traffic volumes are being considered, there is the potential for wider-scale impacts, which can potentially affect the future background concentrations, as well as concentrations within 200m of individual roads within the affected network."*

1.1.3. The 200m atmospheric deposition distance for vehicular emissions is also recognised by Natural England in their 2018 guidance (Approach to advising competent authorities on the assessment of road traffic emission under the Habitats Regulations", (NEA001-2018))[3]. The guidance advises that the first step is to identify the spatial distribution of qualifying features within a designated site and that if there are no qualifying features sensitive to air pollution within 200m of a road, then no further assessment is required.

1.1.4. Natural England's 2018 guidance determines that a Competent Authority should consider the implications of a plan or project against three 'nitrogen thresholds' when undertaking HRA screening.

1.1.5. These thresholds are:

- An increase (on any single road) in Annual Average Daily Traffic (AADT) of 1000 domestic vehicles or greater;
- An increase (on any single road) in AADT of 200 HGV or greater; or
- That the predicted pollution concentration of nutrient deposition for the oxides of nitrogen (NO_x), ammonia (NH_3) or nitrogen (N), due to vehicular emissions and/or direct emissions from the development is:
  - Equal to or greater than 1% of the pollutants Critical Level ($\mu g/m^{3\text{-}s}$), or
  - Equal to or greater than 1% of the site's Nitrogen Critical load ($Kg/N/ha^{1}/year^{1}$).

1.1.6. It should be noted that even if a plan exceeds either, or both AADT thresholds it may still be screened out if the level of modelled emissions and nitrogen deposition are shown to be less than 1% of the Nitrogen Critical Load of the European site under consideration.

1.1.7. Additionally, the impacts of increased air pollution on European sites due to traffic growth will also be determined in line with the Institute of Air Quality Management 2020

[1] Gov.uk, Transport analysis guidance, (2021), Available at: https://www.gov.uk/guidance/transport-analysis-guidance-tag
[2] Institute of Air Quality Management, (2020), A guide to the assessment of air quality impacts on designated nature conservation sites, V1.1, Available at: https://iaqm.co.uk/text/guidance/air-quality-impacts-on-nature-sites-2020.pdf
[3] Natural England (2018), approach to advising competent authorities on the assessment of road traffic emission under the Habitats Regulations, NEA001-2018 , Available at: http://publications.naturalengland.org.uk/publication/4720542048845824

methodology[4] and using relevant critical load levels derived from the UK Air Pollution Information System (APIS) website.

1.2. Identification of Roads where Significant Traffic Growth May Occur

1.2.1. Drawing C159172-01 (see Map Annex RT-MME-159172-02) illustrates all roads within 200m of the boundary of all parcels of the ten European sites in consideration.

1.2.2. Consistent with the categories used by Footprint Ecology[5] the roads have been split into four different categories:

- *Motorways;*
- *A Roads;*
- *B Roads; or*
- *Unclassified/Minor Roads.*

1.2.3. For the majority of '*unclassified and minor roads',* due to their reduced traffic capacity and lack of connectivity between settlements and to areas of employment or services (i.e., medical, schools, provisioning, etc.) it can be considered highly unlikely the partner authorities land use allocations (either alone or in combination with partners plans) could result in a significant AADT increase (see Section 1.1.5).

1.2.4. As such (with some key exceptions) it is recommended that the majority of '*unclassified and minor roads'* can be screened out from the need for assessment of traffic growth.

1.2.5. Table 1.1. identifies what is considered to represent the key roads within 200m of the land parcels of European sites in consideration. For each key road a Recommended Assessment Point (RAP) has been determined.

[4] Institute of Air Quality Management, (2020), A guide to the assessment of air quality impacts on designated nature conservation sites, V1.1, Available at: https://iaqm.co.uk/text/guidance/air-quality-impacts-on-nature-sites-2020.pdf
[5] Footprint Ecology, (2022), HRA of the South Staffordshire Local Plan Review 2018-2038 (publication Plan, Regulation 19), Available at: https://www.sstaffs.gov.uk/planning/local-plan-review-3.cfm

European Site Name	Land Parcel (If Applicable)	Road Type	Road Name	Location/s (Grid Ref)	RAP Ref Number
Cannock Chase SAC	N/A	A	A513	SJ 97863 20801	RAP 1
		A	A460 (Rugeley Rd)	SK 02167 14729	RAP 2
		Unclassified/Minor	Camp Rd	SJ 97715 17067	RAP 3
Pasturefields Salt Marsh SAC	N/A	A	A51	SJ 99458 24888	RAP 4
West Midlands Mosses SAC and Midlands Meres and Mosses Ramsar Phase 1 Site	Chartley Moss	A	A518	SK 02143 28927	RAP 5
	Wybunbury Moss	B	B5071	SJ 69555 49964	RAP 22
Midlands Meres and Mosses Phase 2 Ramsar Site	Aqualate Mere	Unclassified/Minor	Walkley Bank	SJ 75639 20961	RAP 6
		Unclassified/Minor	Guild Lane	SJ 78883 20220	RAP 7
	Cop Mere	Unclassified/Minor	Un-named Rd to East of Cop Mere	SJ 80303 29457	RAP 8
	Black Firs & Cranberry Bog	A	A531 (Newcastle Rd)	SJ 74654 50071	RAP 23
		Unclassified/Minor	Post Office Lane	SJ 74778 50478	RAP 24
	Oakhanger Moss	Motorway	M6	SJ 77091 55066	RAP 25
Mottey Meadows SAC	N/A	Unclassified/Minor	Marston Rd	SJ 84388 13684	RAP 9
Cannock Extension Canal SAC	N/A	A	A5 (Watling St)	SK 02021 06915	RAP 10
		B	B4154 (Lime Ln)	SK 02005 06290	RAP 11
Fens Pools SAC	N/A	A	A4101 (High Street)	SO 92068 89240	RAP 12
		A	A461 (Stourbridge Rd)	SO 92407 88622	RAP 13
Midlands Meres and Mosses Ramsar Phase 1 Site	Betley Mere	Unclassified/Minor	Cracow Moss	SJ 75260 47444	RAP 14

Table 1.1: Roads to be Assessed (Continues)

European Site Name	Land Parcel (if applicable)	Road Type	Road Name	Location/s (Grid Ref)	RAP Ref Number
Peak District Dales SAC	N/A	Unclassified/Minor	The Pinch	SK 1461 5507	RAP 15
		Unclassified/Minor	Liffs Rd	SK 1579 5673	RAP 16
		Unclassified/Minor	Larkstone Lane	SK 1003 5411	RAP 17
		Unclassified/Minor	-	SK 1225 5156	RAP 18
		Unclassified/Minor	-	SK 1336 5042	RAP 19
		Unclassified/Minor	Leek Rd	SK 0984 5567	RAP 20
		Unclassified/Minor	Parwick Lane	SK 1942 5620	RAP 21
Bees Nest & Green Clay Pits SAC	N/A	Unclassified/Minor	Manystones Lane	SK 24035 54943	RAP 26

Table 1.1: (Continued) Roads to be Assessed

1.2.6. In total it is considered that a robust screening assessment could be undertaken by determining the likely impact at 26 RAPs across the total area of consideration. The location of each RAP is depicted on Drawing C159172-02 (Map Annex RT-MME-159172-02).

1.2.7. However, it is considered that there is rationale to reduce the total RAPs down to ten locations without a material reduction in the robustness of the evidence base.

1.2.8. At the evidence base's inception stage, it appears highly unlikely that the adoption of land usage allocations within any of the partnership authorities' local plans (either alone or in combination) could result in a significant impact (as a result of increased nitrogen deposition derived from traffic growth) upon:

- Chartley Moss;
- Aqualate Mere;
- Mottey Meadows;
- Betely Mere;
- Wynbunbury Moss;
- Black Firs & Cranberry Bog
- Bees Nest & Green Clay Pits SAC or
- Any land parcel of the Peak District Dales SAC.

1.2.9. The rationale for Screening out these areas from the need for further assessment are provided in sections 1.3 to 1.10.

1.2.10. Whilst it is recommended that these land parcels could be removed from the need for further assessment (without degrading the robustness of the evidence base produced) it is important that discussions with the Appropriate Authority (Natural England) are undertaken on this matter, and due regard given to their considerations before determining the final approach.

1.3. Chartley Moss, Rationale for Scoping Out

1.3.1. Within 200m of Chartley Moss (which constitutes a land parcel of both West Midlands Mosses SAC and Midlands Meres and Mosses Ramsar Phase 1 Site) it is considered that adoption of land use allocations by the partnership authorities local plans could only result in significant traffic growth on the A518 (RAP 5).

1.3.2. This is due to all other roads within 200m either only:

- Providing access to private residences, or
- Being a single tracked road, which does not act as a link between settlements or a route to the provision of services.

1.3.3. It is considered highly unrealistic that the adoption of land use allocations (from one or more partnership local plans) could result in an increase in AADT of 1000 or greater domestic vehicles or 200 or greater HGVs along a single-track road, which does not provide a clear link between two settlements or provide a route linking areas or residential growth to employment or services.

1.3.4. As such the A518 is the only key road identified in Table 1.1.

1.3.5. Section 4.19 of Natural England's 2018 guidance (see Section 1.1.3) states:

- *"An early understanding of the spatial distribution of features within a site can help to decide whether or not appropriate assessment will be required*… [if] *any sensitive qualifying features are not present within the area to be affected by emissions (and Natural England's advice is that there is no conservation objective to restore the features to that area), it will be relatively straightforward to ascertain that the plan or project poses no credible air quality risk to it*."

1.3.6. The only habitat within the SAC and Ramsar site which lies within 200m of the A518 is an area of broad-leaved deciduous woodland within Parcel 5 of the underlying Chartley Moss SSSI[6]. Broad-leaved deciduous woodland is not a qualifying feature of the SAC designation, a criterion for its selection as a Ramsar site or a habitat upon which the species (which form its criterion for Ramsar selection) rely.

[6] Natural England, Chartley Moss SSSI, Parcel 5 'RAILWAY – BUFFER', Site information, Available at: https://designatedsites.naturalengland.org.uk/UnitDetail.aspx?UnitId=1022792

1.3.7. In line with Natural England's 2018 guidance, no further assessment should be required on the Chartley Moss land parcel of the West Midlands Mosses SAC and the Midlands Meres and Mosses Ramsar Phase 1 Site.

1.4. Aqualate Mere, Rational for Scoping Out

1.4.1. No 'A' or 'B' roads lie within 200m of the boundary of Aqualate Mere.

1.4.2. Only two minor roads (Walkley Bank and Guild Lane) lie within 200m of the site boundary.

1.4.3. Both roads are single track along their entire length.

1.4.4. Walkley Bank (RAP 6) links the hamlets of Meretown and Forton.

1.4.5. Guild Lane (RAP 7) does not provide a clear link between any settlements or provide a route linking areas or residential growth to employment or services, rather it functions primarily to provide access to a small capacity car park by which members of the public can access Aqualate Mere.

1.4.6. Due to their inherent low traffic capacity and their lack of obvious connectivity between notable settlements, places of employment or services, it is considered highly unrealistic to consider that the adoption of land use allocations (from one or more local plans) would result in an increase in AADT of 1000 (or greater) domestic vehicles or 200 (or greater) HGVs on either of the minor roads within 200m of the boundary of Aqualate Mere.

1.4.7. Section 4.17 of the Natural England's 2018 Guidelines (see Section 1.1.3) states:

- *"Usually, only those European sites present within 200m of the edge of a road on which a plan or project will generate traffic will need to be considered when checking for the likelihood of significant effects from road traffic emissions."*

1.4.8. Based on the information available it appears highly unlikely that the future adoption of partnership local authorities' local plans (alone or in combination) could result in a measurable increase in annual traffic generation on either Walkley Bank or Guild Lane.

1.4.9. In line with Natural England's 2018 guidelines[7] no further assessment should be required on the Aqualate Mere land parcel of the Midlands Meres and Mosses Phase 2 Ramsar Site.

[7] [7] Natural England (2018), approach to advising competent authorities on the assessment of road traffic emission under the Habitats Regulations, NEA001-2018 , Available at: http://publications.naturalengland.org.uk/publication/4720542048845824

1.5. Mottey Meadows, Rational for Scoping Out

1.5.1. No ‘A’ or ‘B’ roads lie within 200m of the boundary of Mottey Meadows SAC.

1.5.2. Only two minor roads (Marston Road and Gay Lane) lie within 200m of the site boundary.

1.5.3. Both roads are single track along their entire length.

1.5.4. Gay Lane only provides access to a single private residence.

1.5.5. Marston Road (RAP 9) links the village of Wheaton Aston to the hamlet of Marston.

1.5.6. Due to their inherent low traffic capacity and their lack of obvious connectivity between notable settlements and places of employment or services, it is highly unrealistic to consider that the adoption of land use allocations (from one or more of the partnership authorities’ local plans) would result in an increase in AADT of 1000 (or greater) domestic vehicles or 200 (or greater) HGVs on either of the minor roads within 200m of the boundary of Mottey Meadows.

1.5.7. Based on the information available it appears highly unlikely that the future adoption of partnership local authorities’ local plans (alone or in combination) could result in a measurable increase in annual traffic generation on either Gay Lane or Marston Road.

1.5.8. In line with Natural England’s 2018[8] guidelines no further assessment should be required on Mottey Meadows SAC.

1.6. Betley Mere, Rational for Scoping Out

1.6.1. Betley Mere (a land parcel of the Midlands Meres and Mosses Ramsar Phase 1 Site) does not lie within a partnership authorities’ boundary but does lie within 10km of a jurisdictive boundary.

1.6.2. No ‘A’ or ‘B’ roads lie within 200m of the Betley Mere land parcel of the Midlands Meres and Mosses Ramsar Phase 1 Site.

1.6.3. Only one minor road (Cracow Moss) lies within 200m of the site boundary.

1.6.4. Cracow Moss (RAP 14) only provides access to a small number of scattered private residences.

1.6.5. The road is single track along its entire length.

[8] Natural England (2018), approach to advising competent authorities on the assessment of road traffic emission under the Habitats Regulations, NEA001-2018 , Available at: http://publications.naturalengland.org.uk/publication/4720542048845824

1.6.6. Due to its inherent low traffic capacity and lack of any connectivity between notable settlements and places of employment or services, it is highly unrealistic to consider that the adoption of land use allocations (from one or more of the partnership authorities' local plans) would result in any increase in AADT on Cracow Moss.

1.6.7. In line with Natural England's 2018 guidelines[9] no further assessment should be required on the Betley Mere land parcel of the Midlands Meres and Mosses Ramsar Phase 1 Site.

1.7. Wynbunbury Moss, Rational for Scoping Out

1.7.1. No part of the Wynbunbury Moss (a land parcel of the Midlands Meres and Mosses Phase 1 Ramsar Site) lies within a partnership authorities' boundary, or within 10km of any jurisdictive boundary.

1.7.2. No 'A' roads lie within 200m of the boundary of Wynbunbury Moss and only one B road, Stock Lane is present (the B5071). Where Stock Lane is present within 200m of the site it is either at the very limit of the 200m deposition distance buffer or it is separated from the Ramsar site by intervening residential development (the village of Wybunbury). It is considered that the residential developments would likely act as anthropogenic physical barriers, notably reducing the dispersal distance of any air pollution, nitrogen deposition and acidification.

1.7.3. Stock Lane (RAP 22) links the village of Wynbunbury to the village of Shavington.

1.7.4. Based on the information available it appears highly unlikely that the future adoption of partnership local authorities' local plans (alone or in combination) could result in a measurable increase in annual traffic generation between the villages of Wynbunbury to the village of Shavington.

1.7.5. In line with Natural England's 2018 guidelines[10] no further assessment should be required on the Wynbunbury Moss land parcel of the Midlands Meres and Mosses Phase 1 Ramsar Site.

1.8. Black Firs & Cranberry Bog, Rational for Scoping Out

1.8.1. No part of the Black Firs and Cranberry Bog (a land parcel of the Midlands Meres and Mosses Phase 2 Ramsar Site) lies within a partnership authorities' boundary, or within 10km of any jurisdictive boundary.

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[9] Natural England (2018), approach to advising competent authorities on the assessment of road traffic emission under the Habitats Regulations, NEA001-2018 , Available at: http://publications.naturalengland.org.uk/publication/4720542048845824

[10] [10] Natural England (2018), approach to advising competent authorities on the assessment of road traffic emission under the Habitats Regulations, NEA001-2018 , Available at: http://publications.naturalengland.org.uk/publication/4720542048845824

1.8.2. Only one A road, Newcastle Rd (the A531) and one B road (B5500) lies within 200m of the boundary of the site.

1.8.3. Newcastle Rd (RAP 23) links several small villages and hamlets, Madeley Heath, Bowsey Wood, Wrinehil, Betley, New Thorntree, Hough, Shavington and Blakelow. It is considered highly unlikely that the future adoption of partnership local authorities' local plans (alone or in combination) could result in a measurable increase in annual traffic generation between these villages.

1.8.4. The B5500 runs north of the site and only likes the hamlet of New Thorntree to the hamlet of Balterley.

1.8.5. Only two minor roads are within 200m of the boundary of the site, Waybutt Lane and Post Office Lane.

1.8.6. Waybutt Lane provides access (off of the A531) to a single farm and the village of Chorlton.

1.8.7. Post Office Lane (RAP 24) provides an alternative access from the hamlet of New Thorntree to the B5500 and is single track along the majority of its length.

1.8.8. Based on the information available it appears highly unlikely that the future adoption of partnership local authorities' local plans (alone or in combination) could result in a measurable increase in annual traffic generation between the hamlets of New Thorntree and Balterley or result in additional trips to/from the village Chorlton.

1.8.9. In line with Natural England's 2018 guidelines[11] no further assessment should be required on the Black Firs and Cranberry Bog land parcel of the Midlands Meres and Mosses Phase 2 Ramsar Site.

1.9. Bees Nest & Green Clay Pits SAC, Rational for Scoping Out

1.9.1. No part of the Bees Nest and Green Clay Pits SAC lies within a partnership authorities' boundary, but it does lie within 10km of a jurisdictive boundary.

1.9.2. No 'A' or 'B' roads lie within 200m of the SAC boundary.

1.9.3. Only two minor roads, Manystones Lane (RAP 26) and Wirksworth Dale lie within 200m of the SAC boundary.

1.9.4. Both roads are single track along their entire length. Wirksworth Dale provides access to several fields. Manystone Lane links the villages of Bassington and Bolehill.

1.9.5. Based on the information available it appears highly unlikely that the future adoption of partnership local authorities' local plans (alone or in combination) could result in a

[11] [11] Natural England (2018), approach to advising competent authorities on the assessment of road traffic emission under the Habitats Regulations, NEA001-2018 , Available at: http://publications.naturalengland.org.uk/publication/4720542048845824

measurable increase in annual traffic generation to the fields along Wirkworth Dale or between the villages of Bassington and Bolehill.

1.9.6. In line with Natural England's 2018 guidelines no further assessment should be required on the Bees Nest and Green Clay Pits SAC.

1.10. Peak District Dales SAC, Rational for Scoping Out

1.10.1. No part of the Peak District Dales SAC lies within a partnership authorities' boundary, but several land parcels are within 10km of a jurisdictive boundary.

1.10.2. In total 17 land parcels (of varying sizes) lie within 10km of the jurisdictive boundary of a partnership authority.

1.10.3. No 'A' or 'B' roads lie within 200m of any of the land parcels of the Peak District Dales SAC which are partly, or wholly, within 10km of a jurisdictive boundary of a partnership authority.

1.10.4. Whilst a large number of roads lie within 200m of the 17 land parcels, the vast majority only provide access to isolated private residences and farms or are farm tracks providing access to fields and so are not public highways.

1.10.5. It is considered that seven key roads lie within 200m of the land parcels considered (The Pinch, Liffs Road, Larkstone Lane, Leek Road, Parwick Lane and two unnamed roads). All are minor roads.

1.10.6. All seven roads are single track along their entire length.

1.10.7. None of the roads appear to function as a link between any notable settlements, to connect a settlement/s with places of employment (with the exception of agricultural access) or services.

1.10.8. Due to their inherent low traffic capacity and their lack of obvious connectivity between notable settlements and places of employment or services, it is highly unrealistic to consider that the adoption of land use allocations (from one of more of the partnership authorities' local plans) would result in an increase in AADT of 1000 (or greater) domestic vehicles or 200 (or greater) HGVs on any of the identified seven key roads within 200m of any of the land parcels of the Peak District Dales SAC.

1.10.9. Based on the information available, it appears highly unlikely that the future adoption of partnership local authorities' local plans (alone or in combination) could result in a measurable increase in annual traffic generation on any of the key roads.

1.10.10. In line with Natural England's 2018[12] guidelines no further assessment should be required on the Peak District Dales.

[12] Natural England (2018), approach to advising competent authorities on the assessment of road traffic emission under the Habitats Regulations, NEA001-2018 , Available at: http://publications.naturalengland.org.uk/publication/4720542048845824

1.11. Recommended Assessment Locations

1.11.1. Based upon the rational provided above (see Sections 1.3 - 1.10), and assuming that consultation with Natural England is completed (and they provide written conformation confirming that they concur that the reasons for removing several European sites from further consideration to be robust), the revised list of RAP's is detailed below in Table 1.2.

European Site Name	Land Parcel (If Applicable)	Road Type	Road Name	Location/s (Grid Ref)	RAP Ref Number
Cannock Chase SAC	N/A	A	A513	SJ 97863 20801	RAP 1
		A	A460 (Rugeley Rd)	SK 02167 14729	RAP 2
		Unclassified/Minor	Camp Rd	SJ 97715 17067	RAP 3
Pasturefields Salt Marsh SAC	N/A	A	A51	SJ 99458 24888	RAP 4
Midlands Meres and Mosses Phase 2 Ramsar Site	Cop Mere	Unclassified/Minor	Un-named Rd to East of Cop Mere	SJ 80303 29457	RAP 8
	Oakhanger Moss	Motorway	M6	SJ 77091 55066	RAP 25
Cannock Extension Canal SAC	N/A	A	A5 (Watling St)	SK 02021 06915	RAP 10
		B	B4154 (Lime Ln)	SK 02005 06290	RAP 11
Fens Pools SAC	N/A	A	A4101 (High Street)	SO 92068 89240	RAP 12
		A	A461 (Stourbridge Rd)	SO 92407 88622	RAP 13

Table 1.2.: Roads to be Assessed after Scoping

2. Screening Thresholds

2.1. Screening Against Modelled AADT Growth

2.1.1. A suitably experienced Traffic and Transport Consultancy (TTC) should be engaged and provided with appropriately attributed shape files of all the land use allocations of the partnership authorities where preferred options are known[13].

2.1.2. At all RAPs the TTC must model the likely traffic growth of all known site allocations over the total extent of the (combined) local plan periods. This information can be derived via Trip Rate Information Computer System datasets (TRICS[14])[15].

2.1.3. TRICS is a national system of trip generation analysis based on an extensive database formed from several thousand transport surveys. This allows TRICS datasets to determine inbound and outbound traffic generation and trip dispersal for a wide variety of development types across all geographic regions of the UK.

2.1.4. The vehicular and HGV trip generation rates for all the site allocations provided to the TCC (and the likely destinations of these new trips) can be combined to determine likely net-AADT growth at each assessment location.

2.1.5. Site allocation's that will result in the re-development of a previously developed site (especially those that result in a reallocation from employment to residential) frequently have the outcome of changing traffic types and traffic patterns. These types of site allocation often result in changes in the types and patterns of vehicle trip cause by the site and will reduce in AADT on some roads whilst increasing it on others.

2.1.6. As such, where a site allocation is for the re-development of a currently developed and still operational, only its net-increase in AADT at any RAP should be considered.

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[13] **Please note: It is understood that, at this time, many partnership authorities have not yet identified the preferred locations of future Local Plan allocations. This will not prevent the assessment being undertaken as the likely in-combination traffic growth / nitrogen deposition can be accounted for using national data sets to derive regional traffic growth factors which can then be used to reflect traffic growth from both 'unallocated partnership a thorites' and traffic growth originating from outside the combined partner authority's area (see Section 2.2). Subsequently, when a partnership authority (which currently lacks preferred allocation location data) wishes to assess the possible impacts of their own AADT growth, the traffic growth at all RAPs will need to be re-modelled (in accordance with the methodology detailed in Section 2.1), but only using the shape files of their allocations. Once AADT growth figures for that partnership authorities are determined (in isolation) they can then be compared against the previously modelled in-combination values at each RAP. Should their AADT growth be determined to be less than the previously modelled in-combination values then it can be assumed that their impacts have already been accounted for and their likely impacts fully assessed. Their AADT growth would then be deducted from the previously modelled in-combination values, reducing the 'pool' of in-combination AADT for future partnership authorities to test against. In this manner it is anticipated that the pool of in-combination AADT at each RAP will reduce over time as successive additional sets of Local Plan allocations are tested against it.**

[14] TRICS, 2022, Available at: https://www.trics.org/Default.aspx

[15] Based upon the TTC's advice, alternative traffic models to TRICS may be recommended to generate site specific trip data. These other models could be used if deemed more robust, but re-consultation with NE should occur prior to the adoption of an alternative model.

2.1.7. The net-AADT of site allocations on previously developed and still operational sites can be calculated by the TTC by:

- Determining the currently operational site's trip generation / AADT along the highway network, and
- Deducting the sites current trip generation / AADT figures from the modelled trip generation / AADT figures, attributed to its new allocation.

2.1.8. At any RAP where the likely **net-AADT of all known land usage allocations** is determined to be **0,** no further assessment is required at that location.

2.1.9. At any RAP where the likely **net-AADT of all known land usage allocations** is determined to be **between 1-999 domestic vehicles** or **1-199 HGV's,** an **in-combination assessment is required,** and the possible traffic growth caused by other plans and projects must be considered (see Section 1.6).

2.1.10. At any RAP where the likely **net-AADT of all known land usage allocations** is determined to be **1000 or greater domestic vehicles** or **200 or greater HGV's,** there is a **possible significant impact upon a European site in isolation.** In this instance then further screening against site specific critical load thresholds using nitrogen deposition modelling must occur (see Section 1.7).

2.2. Traffic Growth In-combination Assessment

2.2.1. The requirement for in-combination assessment is enshrined within the HRA process and must be undertaken on every potential impact which is shown to be insignificant in isolation.

2.2.2. By amalgamating the spatial data of all available preferred land usage allocations from multiple partnership authorities, their combined traffic growth at each RAP has already been calculated (via TRICS derived modelling) and considered against each other. However, this figure is unlikely to represent all the future traffic growth of these roads as:

- It is unable to account for traffic growth from those partnership authorities where the locations of preferred land usage allocation have yet to be determined; and
- It is unable to account for traffic growth originating from plans or projects that occur outside of the partner authority's area.

2.2.3. To account for both currently 'unallocated partnership authorities' and 'out of partnership area' growth it is considered that an appropriate value to represent likely in-combination growth could be determined by the TCC via usage of the Trip End Model Presentation Program (TEMPro[16]). TEMPro is used to view the National Trip End Model (NTEM[17])[18] which allows for the forecasting of regional traffic growth up to the end of the combined

[16] Trip End Model Presentation Program (TEMPro), available at: https://www.gov.uk/government/publications/tempro-downloads
[17] The Department for Transport (2022) National Trip End Model (NTEM), OGL, Available at: https://www.data.gov.uk/dataset/11bc7aaf-ddf6-4133-a91d-84e6f20a663e/national-trip-end-model-ntem
[18] Based upon the TTC's advice, alternative traffic models to NTEM may be recommended to generate in-combination AADT. These other models could be used if deemed more robust, but re-consultation with NE should occur prior to the adoption of an alternative model.

local plan periods. Once this growth factor is determined it can be applied to the existing base rate of AADT for the roads being assessed and the 'in-combination AADT' can be calculated.

- *For example: if the baseline AADT was 3000 and the growth factor was 2%, the likely 'in-combination AADT' would be 3060.*

2.2.4. On any road where the total value of the **known land usage allocations** generated **net-AADT** (calculated using TRICS dataset) and the forecast for the regional traffic growth (derived using TEMPro) is **less than 1000 AADT for domestic vehicles** or less than **200 AADT for HGV** then it has been clearly demonstrated that the **adoption of the known allocations, in combination with other plans, are highly unlikely to result in a significant impact** to that European site (due to increased traffic emissions).

2.2.5. On any road where the total value of **the known land usage allocations generated net-AADT** and the forecast for the regional traffic growth is **1000 AADT or greater for domestic vehicles**, or **200 AADT or greater for HGVs**, then there is a **possible significant impact upon a European site in combination with other plans.** In this instance, further screening against site specific critical load thresholds using nitrogen deposition modelling must occur (see Section 1.7).

2.2.6. It is noted that to allow for in-combination traffic growth to be calculated via TEMPro, the current baseline traffic rate for the roads at each RAP will need to be determined (where it has been concluded that net-AADT of all known allocations is less than 0). Whilst recent baseline traffic rate data may already be available for 'A' and 'B' roads, it is considered unlikely that this information will be available for the majority (or possibly all) of the unclassified / minor roads. As such, the existing traffic level at several RAPs may need to be determined via a new traffic counting survey.

2.2.7. The undertaking of traffic counting surveys is restricted to certain times of the year (i.e., periods deemed to represent 'usual traffic').

2.2.8. Where and when additional traffic counting surveys will need to be undertaken will need to be discussed with the TCC upon their appointment to ensure that robust and current traffic figures are available at all RAP locations where an in-combination assessment needs to be undertaken.

2.3. Screening Against Modelled Air Pollution, Nitrogen Deposition and Acidification.

2.3.1. A suitably experienced Air Quality Consultant (AQC) should be engaged and provided with the traffic growth data for all RAP locations where the net-AADT (alone or in-combination exceeds either of the traffic screening thresholds (see Section 1.1.5.).

2.3.2. The AQC will be instructed to model[19] the levels of gaseous ammonia (NH_3) and the oxides of Nitrogen (collectively NO_x) generated by the likely traffic growth along a 200m transect (running from the RAP location towards the nearest location in the Europeans site where the qualifying habitat is present (or habitats upon which the qualifying species relies).

2.3.3. The AQC will also determine the levels of deposition of nitrogen and acidification that could occur from the modelled levels of pollutants along the same 200m transect.

2.3.4. The AQC should take account or relevant meteorological data for each RAP where a transect is to be modelled.

2.3.5. **Critical Levels for NO_x and NH_3**

- In extreme cases NO_x can be directly toxic to vegetation and so impact directly on the qualifying habitats of European sites, but its main importance is as a source of nitrogen, which is then deposited. The 'critical level' is the atmospheric concentration at which NO_x could begin to directly impact upon vegetation. **For NO_x the critical level**, as detailed on the UK Air Pollution Information System (APIS)[20], **is 30 µg/m$^{3\text{-s}}$**. As such, **if the change in concentration is predicted to be greater than 0.3 µg/m$^{3\text{-s}}$, then 1% of the critical level has been exceeded**.

- NH_3 differs from NO_x in that it is both a source of nitrogen and is also directly toxic to vegetation in relatively low concentrations. **For NH_3 the critical level**, as detailed on the UK Air Pollution Information System (APIS)[21], **is either 1 µg/m$^{3\text{-s}}$ for lower plants or 3 µg/m$^{3\text{-s}}$ for higher plants**. To determine which critical level should be accessed against consideration must be given as to which order/s of plant constitute a key ecological component of the qualifying habitat, or habitat on which qualifying species rely. If lower plants (bryophytes, stoneworts, liverworts etc.) are considered to constitute a key ecological component then the lower value should be used. As such, **if the change in concentration is predicted to be greater than either 0.01 µg/m$^{3\text{-s}}$ or 0.03 µg/m$^{3\text{-s}}$ (whichever is determined to be most appropriate), then 1% of the critical level has been exceeded.**

- The change in pollutant concentrations due to the modelled traffic growth is known as the Process Contribution (PC).

[19] Via usage of ADMS-Roads, the Emission Factor Toolkit (EFT) or another recognised pollution model.
[20] UK Air Pollution Information System (APIS), 2020, Available at: https://www.apis.ac.uk/
[21] UK Air Pollution Information System (APIS), 2020, Available at: https://www.apis.ac.uk/

- To determine in-combination impacts and to see if the predicted traffic growth will result in a significant change in pollutant concentration, the PC is added to the background levels of each pollutant at, or near to each RAP. When the PC is added to the background level it is referred to as the predicted environmental concentration (PEC). The PEC should be determined across the total time period of the local plans.

- Two PEC scenarios should be modelled to estimate changes in pollution concentration: '**with adoption of preferred land usage allocations**' and '**without adoption of preferred land usage allocations**'. This allows for the impacts of the adopted plans to be compared against a 'do nothing scenario' (i.e., where local plans are not ever adopted). The change in pollution concentration between the 'do something scenario' (i.e., adopt local plans) to be directly assessed against the 'do nothing scenario' across each year of the local plan. The difference between the PEC of the two scenarios can then be determined and expressed as a percentage change of the critical level. If it is found that it is likely that 1% of the critical level will be exceeded (for one or more years across the span of the local plan) then Appropriate Assessment will need to be undertaken (see Chapter 3).

- For many of the RAP's, additional work has already occurred to better understand the background levels of pollutants via a network of diffusion tube monitoring stations installed by the Cannock Chase SAC Partnership. This diffusion tube monitoring provides data on the background concentrations of NO_x and NH_3 for six of the European sites being considered which can be used to complement modelled regional information provided by the APIS website[22]. The locations of these monitoring station are depicted on drawing C159172-01-02 (see Chapter 4).

- Where the Cannock Chase SAC Partnership has not established a monitoring station near to a RAP, the background pollution levels may be able to be derived from data from nearby monitoring stations established by highways or other local authority departments (Environmental Health). If no relevant monitoring station data is available, then modelled background pollution concentration across the whole of the UK (5km grid squares) is available from the APIS website[23].

- For each European site considered, the site-specific critical levels are displayed in Table 2.2. This information is provided by the UK Air Pollution Information System (APIS)[24].

2.3.6. Nitrogen Critical Load

- Nitrogen deposition is a form of eutrophication, derived from the combined nitrogen of NO_x and NH_3. Eutrophication negatively effects the biodiversity and ecological functions of habitats over time, altering soil chemistry and encouraging more competitive plant species. In aquatic habitats, nutrient enrichment frequently results in algal blooms, reducing water quality and resulting in anoxic conditions.

[22] UK Air Pollution Information System (APIS), 2020, Available at: https://www.apis.ac.uk/
[23] UK Air Pollution Information System (APIS), 2020, Available at: https://www.apis.ac.uk/
[24] UK Air Pollution Information System (APIS), 2020, Available at: https://www.apis.ac.uk/

On terrestrial habitats, new plant species can force out less competitive species assemblages, which often constitute the qualifying habitats of a European site, or provide the specific conditions needed to maintain healthy populations of the qualifying species. The nitrogen deposition rate below which these harmful ecological effects would not occur is referred to as the 'critical load'; these are different for each habitat.

- For each European site considered, the site-specific critical loads are displayed in Table 2.2. This information is provided by the UK Air Pollution Information System (APIS)[25].

- The critical loads for nitrogen deposition are described in the units of Kg/N/ha^{1}/year^{1}.

- Deposition rates for nitrogen are calculated by multiplying the ground level concentration of the appropriate pollutant by the appropriate deposition velocity, followed by multiplication with a conversion factor[26]. Deposition velocities and conversion factors for nitrogen deposition NO_x and NH_3 are provided in Table 2.1.

Pollutant	Vegetation type	Deposition velocity	Conversion factor for nitrogen deposition (from µg/m$^{3\text{-}s}$ to kg/N/ha^{1}/year^{1})
NO_x	Grassland (sites with short vegetation)	0.0015	96
	Woodland (sites with tall vegetation)	0.003	
NH_3	Grassland (sites with short vegetation)	0.02	260
	Woodland (sites with tall vegetation)	0.03	

Table 2.1: Pollutant Deposition Velocities and Conversion Factors

2.3.7. If the calculations determine the modelled nitrogen deposition will meet or exceed 1% of the lowest range of the site-specific critical load (see Table 2.2), then Appropriate Assessment will need to be undertaken to determine if their levels, location and temporal span of the nitrogen deposition could impact upon the integrity of the European site (see Chapter 3).

2.3.8. **Acid Deposition Critical Load**

[25] UK Air Pollution Information System (APIS), 2020, Available at: https://www.apis.ac.uk/
[26] Deposition velocities and conversion factors provided via Institute of Air Quality Management, (2020), A guide to the assessment of air quality impacts on designated nature conservation sites, V1.1, Available at: https://iaqm.co.uk/text/guidance/air-quality-impacts-on-nature-sites-2020.pdf

- A range of air pollutants can cause the acidification of soil and freshwater. The key pollutants are sulphur, in the form of sulphate ions (SO_4^{2-}), and nitrogen, as nitrate (NO_3^-), nitric acid (HNO_3) and ammonium ($NH4^+$) which arises from ammonia.

- Acid deposition predominantly impacts vegetation indirectly through changes to soil properties, with increasing the soil acidity, tending to increase the mobility of toxic metals (i.e., aluminium and manganese). Acid deposition is also known to result in root damage and nutrient deficiencies within the soils, both of which can stunt plant growth.

- How great a habitat is at risk from acid deposition is mainly dependant on the soil type, bedrock geology, weathering rate and its buffering capacity. In general, habitats dependent on slightly acidic substrate (i.e., heathland or acid grassland) and bog habitats are at greater risk of being adversely affected by increased rates of acid deposition compared with those associated with calcareous soils.

- Traffic emissions generate a negligible amount of additional sulphur, and so increased acid deposition is mostly a result of additional levels of nitrate and ammonium. These deposition rates must be modelled by the AQC, combined and then assessed against the site specific Minimum Critical Load for each European site provided by APIS. The relevant Minimum Critical Loads are provided in Table 2.2.

- It should be noted that, assuming Natural England agrees with the rationale for screening out several European sites from the need for assessment (see Sections 1.3 - 1.10, the determination of Acid Deposition against Minimum Critical Load levels is only possible / applicable for Cannock Chase SAC.

European Site of land parcel	Relevant RAP/s	Q.habitat/s or habitats which Q.species rely	Critical Level (µg/m^{3-s})	Critical Load range (kg/N/ha^{1}/year^{1})	Critical Load N Acid Dep (keq/ha/yr MinCLMaxN)	Pollutants	Recommended Vegetation type when Determining Deposition Velocity	Recommended Deposition Velocity NO_x / NH_3
Cannock Chase SAC	1,2,3	European dry heaths	1	10-20	1.285	NO_x / NH_3	Grassland – for RAP 1&3 Woodland – for RAP 2[27]	0.0015 / 0.003 0.02 / 0.03
		Northern Atlantic wet heaths with *Erica tetralix*	1					
Pasturefields Salt Marsh SAC	4	Inland salt meadows	3	20-30[28]	N/A[29]	NO_x / NH_3	Grassland	0.0015 / 0.003
Chartley Moss	5	Natural dystrophic lakes and ponds[30]	1	3-10	0.621	NO_x / NH_3	Grassland	0.0015 / 0.003
		Transition mires and quaking bogs[31]	1	10-15	0.621			
Aqualate Mere	6, 7	Fen, marsh and swamp (*Juncus effusus / acutiflorus - Galium palustre* rush pasture)	1	15-25	4.506	NO_x / NH_3	Grassland	0.0015 / 0.003
		Fen, marsh and swamp (*Filipendula ulmaria - Angelica sylvestris* mire)	1	15-30	4.506[32]			
		Fen, marsh and swamp (*Phragmites australis* swamp and reed-beds)	1	15-30	N/A[33]			

Table 2.2: Site Specific Critical Levels, Loads and Deposition Velocities (Continues)

[27] Representative of substantial area of mature woodland between road and qualifying habitat
[28] No critical load range is available for inland salt meadows, as such the values for coastal saltmarsh are recommended to be used instead.
[29] Habitat not sensitive to acidification.
[30] Not within 200m of key road
[31] Not within 200m of key road
[32] Habitat not sensitive to acidification.
[33] Habitat not sensitive to acidification.

European Site of land parcel	Relevant RAP/s	Q.habitat/s or habitats which Q.species rely	Critical Level (µg/m^{3-s})	Critical Load range (kg/N/ha^{1}/year^{1})	Critical Load N Acid Dep (keq/ha/yr MinCLMaxN)	Pollutants	Recommended Vegetation type when Determining Deposition Velocity	Recommended Deposition velocity NO_x / NH_3
Cop Mere	8	Permanent dystrophic lakes, ponds and pools	1	10[34]	N/A[35]	NO_x / NH_3	Grassland	0.0015 / 0.003
Cannock Extension Canal SAC	10, 11	Permanent oligotrophic waters: Softwater lakes	3	10[36]	No critical loads available	NO_x / NH_3	Grassland	0.0015 / 0.003
Fens Pools SAC	12, 13	Permanent oligotrophic waters: Softwater lakes[37]	3	10[38]	No critical loads available	NO_x / NH_3	Woodland[39]	0.02 / 0.03
Betley Mere	14	Fen, marsh and swamp (*Juncus effusus / acutiflorus - Galium palustre* rush pasture)	1	15-25	1.133	NO_x / NH_3	Grassland	0.0015 / 0.003
		Fen, marsh and swamp (*Juncus subnodulosus - Cirsium palustre* fen meadow)	1	15-30	1.133			
		Fen, marsh and swamp (*Phragmites australis* swamp and reed-beds)	1	15-30	N/A[40]			

Table 2.2: (Continued) Site Specific Critical Levels, Loads and Deposition Velocities (Continues)

[34] Range is between 3-10 kg/N/ha^{1}/year^{1}. The lower end of the range is intended for boreal and alpine lakes, and the higher end of the range for Atlantic softwaters. Site conditions considered to more closely relate to Atlantic softwaters so a critical load of 10 kg/N/ha^{1}/year^{1} is recommended.
[35] Habitat not sensitive to acidification.
[36] Range is between 3-10 kg/N/ha^{1}/year^{1}. The lower end of the range is intended for boreal and alpine lakes, and the higher end of the range for Atlantic softwaters Site conditions considered to more closely relate to Atlantic softwaters so a critical load of 10 kg/N/ha^{1}/year^{1} is recommended.
[37] No critical load data in available for the breeding pool utilised by the sites qualifying species (great crested newts). As such the values for softwater lakes are recommended to be used instead
[38] Range is between 3-10 kg/N/ha1/year1. The lower end of the range is intended for boreal and alpine lakes, and the higher end of the range for Atlantic softwaters.. Site conditions considered to more closely relate to Atlantic softwaters so a critical load of 10 kg/N/ha^{1}/year^{1} is recommended.
[39] Representative of substantial areas of mature woodland between both key roads and qualifying habitat.
[40] Habitat not sensitive to acidification.

European Site of land parcel	Relevant RAP/s	Q.habitat/s or habitats which Q.species rely	Critical Level ($\mu g/m^{3-s}$)	Critical Load range ($kg/N/ha^{1}/year^{1}$)	Critical Load N Acid Dep (keq/ha/yr MinCLMaxN)	Pollutants	Recommended Vegetation type when Determining Deposition Velocity	Recommended Deposition velocity NO_x / NH_3
Peak District Dales SAC	15 - 21	Various	1	Consult Natural England[41]	Various[42]	NO_x / NH_3	Grassland Woodland	0.0015 / 0.003 0.02 / 0.03
Wybunbury Moss	22	Raised and blanket bogs	1	5-10	0.562	NO_x / NH_3	Grassland	0.0015 / 0.003
Black Firs & Cranberry Bog	23, 24	Broadleaved deciduous woodland	1	10-20	1.855	NO_x / NH_3	Woodland (RAP 23)	0.02 / 0.03
		Raised and blanket bogs	1	5-10	0.574	NO_x / NH_3	Grassland (RAP 24)	0.0015 / 0.003
Oakhanger Moss	25	Broadleaved deciduous woodland	1	10-20	1.946	NO_x / NH_3	Woodland	0.02 / 0.03
		Carex Acutiformis Swamp	3	N/A[43]	N/A[44]	N/A	N/A	N/A
		Rich fens	3	15-30	N/A[45]	NO_x / NH_3	Grassland	0.0015 / 0.003
		Valley mires, poor fens and transition mires	1	10-15	0.9			
		Raised and blanket bogs	1	5-10	0.573			
		Moist and wet oligotrophic grasslands: Molinia caerulea meadows	1	15-25	1.338			

Table 2.2: (Continued) Site Specific Critical Levels, Loads and Deposition Velocities (Continues)

[41] Due the site containing seven different qualifying habitats and uncertainty over their geographic distribution within the considered land parcels of the SAC it is unclear which critical load level/s to use. If it is determined that any parcels of the Peak District Dales SAC do require assessment (see Section 1.7) Natural England should be consulted as to the appropriate critical load/s to test against.
[42] Due the site containing seven different qualifying habitats and uncertainty over their geographic distribution within the considered land parcels of the SAC it is unclear which critical load level/s to use. If it is determined that any parcels of the Peak District Dales SAC do require assessment (see Section 1.7) Natural England should be consulted as to the appropriate critical load/s to test against.
[43] Habitat not sensitive to eutrophication.
[44] Habitat not sensitive to acidification.
[45] Habitat not sensitive to acidification.

European Site of land parcel	Relevant RAP/s	Q.habitat/s or habitats which Q.species rely	Critical Level ($\mu g/m^{3-s}$)	Critical Load range ($kg/N/ha^{1}/year^{1}$)	Critical Load N Acid Dep (keq/ha/yr MinCLMaxN)	Pollutants	Recommended Vegetation type when Determining Deposition Velocity	Recommended Deposition velocity NO_x / NH_3
Bees Nest & Green Clay Pits SAC	26	Sub-atlantic semi-dry calcareous grassland	1	15-25	4.954	NO_x / NH_3	Grassland	0.0015 / 0.003

Table 2.2: (Continued) Site Specific Critical Levels, Loads and Deposition Velocities

3. Appropriate Assessment

3.1. Determining Likely Impacts of Nitrogen Deposition on the Integrity of a European site

3.1.1. A suitably experienced Ecological Consultant (EC) should be engaged and provided with all reports and modelled data completed by the TTC and AQC.

3.1.2. An Appropriate Assessment (AA) must be undertaken of all European sites where all the below criteria have been met:

- The sites qualifying habitats (or habitat on which the qualifying species rely) which are sensitive to air quality impacts;
- The sites qualifying habitats are within 200m of a road/s;
- Quantifiable traffic growth on the identified road/s is a reasonable possibility;
- The traffic growth at one or more RAP meets or exceeds a net-growth of 1000 AADT for vehicles or 200 AADT for HGVs; either alone (derived through use of TRICS) or in-combination with other plans or projects (derived through use of TEMPro); and
- The modelled air pollution concentration meets or exceeds 1% of critical level for NO_x, NH_3 and/or 1% of the site-specific critical load for nitrogen deposition and/or the site specific acid deposition minimum critical load (where applicable) is met or exceeded; either alone or in combination.

3.1.3. The purpose of AA should first be to determine the scope and scale of the possible impacts and to ascertain if they are sufficient to affect the integrity of the European site. The integrity of the European site is unlikely to be affected if it can be demonstrated that "**it is highly unlikely that traffic growth will result in a significant impact upon the qualifying features of the sites, will prevent the attainment of the site's conservation objectives or otherwise impede their delivery**".

3.1.4. At this nascent stage of the establishment of the evidence bases, it is not possible or appropriate to anticipate which of the European sites considered (if any) will need to progress to AA, or the outcome of those assessments.

3.1.5. However, the following are considered material questions that should be answered by the EC at AA to allow the impact of traffic growth on a sites integrity to be robustly understood:

- Does the qualifying habitat occur in any area where the modelled air pollution, nitrogen deposition and acidification concentrations meet or in exceed 1% of the critical level / load.
- What is the total measured area of the qualifying habitat where critical levels/critical loads are likely to be in exceedance?
- Does the total measured area of any qualifying habitat where critical levels/critical loads are likely to be in exceedance represent a notable percentage of its total area within the European site?

- If the habitat is not the qualifying feature, but instead supports a qualifying species, is it likely that the additional levels of air pollution / nitrogen deposition will result in habitat quality degradation sufficient to impact upon the population or distribution of the qualifying species?
- Is there any habitat, ecological or geological features (either within the site, functionally connected to, or between the road and modelled deposition areas) which may buffer, mitigate or exacerbate the likely impacts of air pollution or nitrogen deposition?
- What is the temporal span of the air pollution, nitrogen deposition or acidification concentration (at or in exceedance of critical levels) across the modelled local plan period?

3.1.6. For any European site where the EC determines that the best scientific evidence available does not suggest that 'it is highly unlikely that traffic growth will prevent the attainment of the site's conservation objectives or otherwise impede their delivery', then it should be deemed that a significant impact upon the site is likely, and mitigation against the likely scale or harm must be determined.

3.2. Determining Proportional Mitigation

3.2.1. As with AA, it is not possible or appropriate to anticipate which of the European sites may require mitigation against the impacts of air pollution or nitrogen deposition. However, it is a requirement of HRA that all mitigation is both proportional to the scale of determined impact and securable.

3.2.2. Any proposed mitigation must be discussed and developed in concert with the considerations of Natural England.

3.2.3. It is considered that there are four main mitigation pathways available to the partnership authorities:

- **Policy;**
- **Habitat management;**
- **Redirection of traffic; or**
- **Increased interception or abstraction of air pollution.**

3.2.4. In the future **Policies** which promote or require the following are likely to reduce the level of traffic growth and / air pollution that is discharged for vehicles have the potential to be considered as mitigatory. However, advice provided by Natural England[46] suggest that insufficient evidence is currently available to robustly determine the likely extent by with policies alone are able to reduce air pollution impacts to European sites. As such, if used, any mitigation of impacts via new policy adoption must form part of an extensive suit of other mitigatory measures. Their inclusion should be viewed more as bringing

[46] Communications from Natural England, 8/02/2023

'added benefit' rather than being a 'mitigatory solution' in and of themselves. That notwithstanding, policies which promote the following should be considered:

- Reduction of reliance on private cars via promotion of sustainable transport (train, bus, cycles, walking networks etc.);
- Increased provision for electric cars (including setting expected percentages for charging and incorporation within new residential, employment and provisioning/servicing developments), and
- Improved communication infrastructure (ensuring that developments make provision for high-speed internet and telecommunications potentially reduces the need to travel, particularly during the morning and evening peak hours).

3.2.5. On some European sites it may be possible that additional **habitat management** could be enacted upon the areas where nitrogen deposition is in exceedance of critical load so as to increase the speed of the nitrogen cycle; removing available 'nutrient nitrogen' from the soil at an accelerated rate. However, it must be noted that forms of habitat management that improve the condition of European sites more generally will be considered as a compensatory measure by Natural England and so should be avoided. This mitigation could take the form of:

- Cutting and collecting vegetation to reduce nutrient levels in soil,
- Spot treatment of areas of undesirable 'high nutrient' plant species,
- Encouraging conditions for de-nitrifying plants or bacterial species to become abundant, or
- The introduction of conservation grazing regimes to reduce nutrient levels in soil.

3.2.6. These additional habitat management prescriptions could be funded via proportional developer contributions from new residential and employment developments across the partnership authorities.

3.2.7. However, any new mitigatory habitat management suggested will need to ensure that:

- It is additional to current management being enacted (i.e., through an existing agreed Agri-environment scheme etc.);
- It is possible (physically and legally);
- It has been agreed with the landowner;
- The delivering party has been identified (if other than the landowner);
- That management will occur across a temporal span which equals (and preferably exceeds) the time where deposition will meet or exceed 1% of the critical load;
- That its enactment will not result in additional ecological harm, or-else this harm can also be mitigated against (i.e., disturbance or nesting / overwintering birds, injury to protected species, overgrazing, etc.); and
- That Natural England agree that this management represents mitigation and not compensation.

3.2.8. **Redirection of traffic** could be achieved via the creation of one or more Clean Air Zones (CAZ), which would charge a toll to use certain roads with certain vehicle types. This approach has recently been taken to resolve air pollution and nitrogen deposition issues

impacting upon the Epping Forest SAC[47]. However, it is unclear if such an approach is practical within the partnership authorities' areas, how such a scheme would be developed and how long it would take to enact.

3.2.9. **Increased interception or abstraction of air pollution** may be possible via the creation of addition man-made air pollution control barriers, the planting and management of additional roadside trees or creation of new intervening woodland blocks.

3.2.10. Man-made air pollution control barriers have the benefit of being immediately affective once installed but thy are often considered to be 'unsightly'. For roadside trees and woodland trees will need to be semi-mature before they begin to meaningfully reduce the level of air pollution reaching the qualifying habitats via both mechanical (i.e., acting as a physical barrier increasing deposition rates) and biological means (i.e., nutrient uptake).

3.2.11. The creation of man-made air pollution control barriers or additional tree / woodland planting and management could be funded via proportional developer contributions from new residential and employment developments across the partnership authorities.

3.2.12. However, the practicality of mitigation by this means and the likely levels of air pollution reduction that it could reliably account for, will need to be carefully considered.

3.2.13. For example, tree planting close to highways may not be practical due to lack of available land, health and safety concerns (because of future overhanging trees) or the potential to impact upon pre-existing underground services.

3.2.14. Also (as with habitat management) any suggested mitigation via new tree planting will need to ensure:

- It is possible (physically and legally);
- It has been agreed with the landowner;
- The delivering party has been identified (if other than the landowner); and
- That mitigation will be affective (i.e., the tree will reach a required minimum height/size) by the start of the temporal span which equals (and preferably exceeds) the time where deposition will meet or exceed 1% of critical load.

3.2.15. The species composition and starting age/size of any trees planted will have a material effect on the likely success of the mitigation. For example, the planting of semi-mature fast growing conifer species could quickly establish a new vegetative barrier and maintain it through all seasons.

[47] Epping Forest District Council, (2020), Epping Forest Interim Air Pollution Mitigation Strategy: Managing the Effects of Air Pollution on the Epping Forest Special Area of Conservation, Available at: https://www.eppingforestdc.gov.uk/wp-content/uploads/2021/02/Interim-Epping-Forest-Air-Pollution-Mitigation-Strategy.pdf

3.2.16. However, the planting of new areas of woodlands and roadside trees (especially conifers) could cause several concerns that would need to be considered and addressed prior to the adoption of mitigation by this method, including:

- Impacts upon biodiversity and ecological connectivity;
- Visual impact; and
- Impacts upon landscape character.

Date: 14 April 2023
Our ref: 427535
Your ref: Air Pollution Evidence Base, Rev B

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Combined Partnership Authorities

BY EMAIL ONLY

Dear Sirs

Planning consultation: Creation of an Air Pollution Evidence Base Brief to Support Local Plan HRA
Location: Staffordshire, Wolverhampton, Walsall, Sandwell and Dudley

Thank you for your consultation on the above report.

Natural England is a non-departmental public body. Our statutory purpose is to ensure that the natural environment is conserved, enhanced, and managed for the benefit of present and future generations, thereby contributing to sustainable development.

The aim of this report is to present a detailed step by step methodology of how the Local Planning Authorities in the above locations will determine the likely air pollution impacts (via increased traffic generation) on several European sites should emerging local plans be adopted.

The report presents a rationale for why certain European sites can be "screened out" from requiring detailed assessment of air quality impacts. For certain European sites that cannot be screened out it presents a methodology for how air quality impacts from emerging local plans will be assessed.

We have reviewed the report and can confirm that it has been prepared in full accordance with Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations. We are therefore able to support the report's methodology and its conclusions.

Should relevant legislation or guidance change the report will need to be reviewed. Should the report itself change please consult us again.

Yours sincerely

Paul Horswill

Dr Paul Horswill
Senior Adviser, West Midlands Team

Report

Traffic modelling to inform an assessment of air quality impacts on European sites in Staffordshire, Wolverhampton, Walsall, Sandwell, and Dudley

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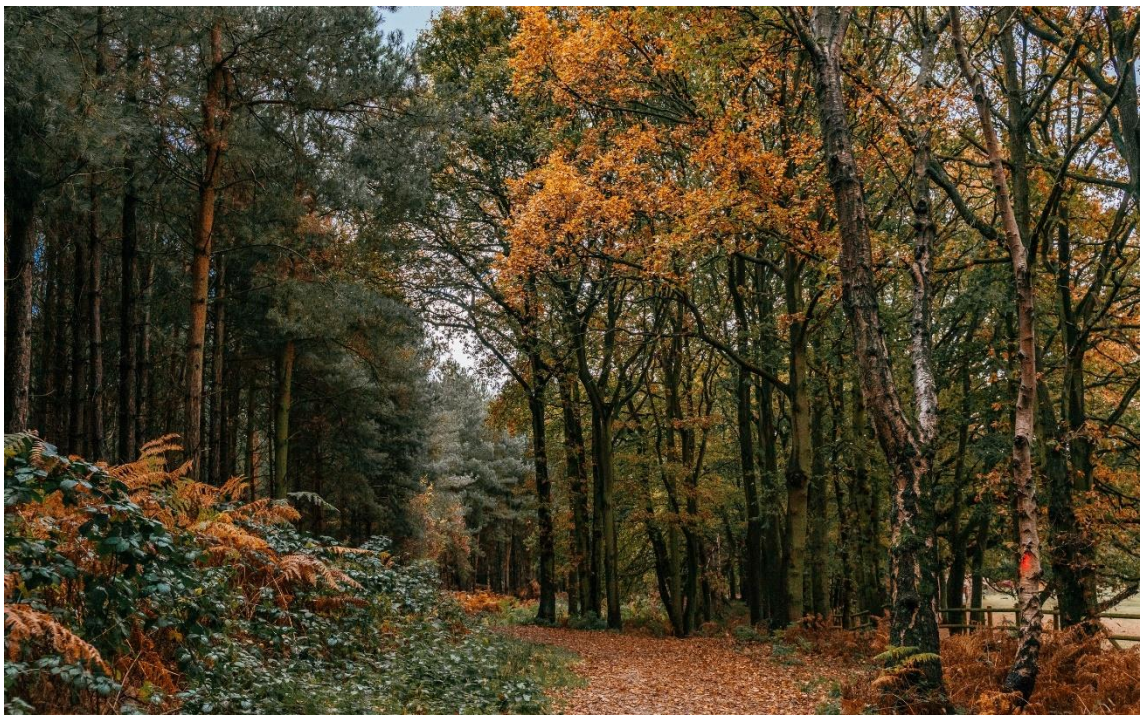
Traffic Model Validation and Forecast



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Glossary

Acronym	Definition
AADT	Annual Average Daily Traffic
SSC	South Staffordshire Council
TTC	Traffic and Transport Consultant
AQC	Air Quality Consultant
HRA	Habitats Regulation Assessment
RAP	Recommended Assessment Point
TAG	Transport analysis guidance
FMA	Fully Modelled Area
PT	Public Transport
AoDM	Area of Detailed Modelling
RotFMA	Rest of the Fully Modelled Area
LGV	Light Goods Vehicle
HGV	Heavy Goods Vehicle
TCC	??
AM	Morning Peak
IP	Inter Peak
PM	Evening Peak
ATC	Automatic traffic count

1 Introduction

1.1 Background

South Staffordshire District Council in collaboration with the Partnership Authorities (Local Planning Authorities detailed below) commissioned Sweco UK as a Traffic and Transport Consultant (TTC) and Air Quality Consultant (AQC) to undertake traffic and air quality modelling that will inform an assessment of air quality impacts on European Sites (formerly Natura 2000 sites) in and around the study area composed of Staffordshire, Wolverhampton, Walsall, Sandwell and Dudley.

South Staffordshire District Council and their HRA partners are progressing their Local Plans and under the Conservation of Habitats and Species Regulations 2017 (as amended), they are required to assess whether their local plan will result in likely significant effects to European sites in and around their administrative areas. The task is achieved by means of a Habitats Regulation Assessment (HRA).

The HRA process requires local authorities to undertake an 'in combination' assessment with other plans and projects and therefore the following local authorities have partnered together to facilitate this in-combination assessment. Nine local authorities have joined to facilitate the in-combination assessment. Participating local authorities are listed below:

- South Staffordshire District Council;
- Stafford Borough Council;
- East Staffordshire Borough Council;
- Lichfield District Council;
- Cannock Chase District Council;
- City of Wolverhampton Council;
- Dudley Metropolitan Borough Council;
- Walsall Metropolitan Borough Council;
- Sandwell Metropolitan Borough Council.

The nine authorities above are referred to collectively throughout this report as The Partnership Authorities. The following European Sites were subject to the HRA process (**bold font** indicates locations where the potential for likely significant effects has been identified):

- **Cannock Chase SAC;**
- **Pasturefields Salt Marsh SAC;**
- West Midlands Mosses SAC;
- Midlands Meres and Mosses Phase 1 Ramsar Site;
- **Midlands Meres and Mosses Phase 2 Ramsar Site;**
- Mottey Meadows SAC;
- **Cannock Extension Canal SAC;**
- **Fens Pools SAC;**
- Peak District Dales SAC;
- Bees Nest and Green Clay Pits SAC.

The rationale for screening out the other European Sites from further assessment is provided in Appendix A, as per an analysis completed by Middlemarch Environmental Ltd[1].

This report focusses on the traffic forecast modelling associated with the emerging Local Plans, the outcomes of which will be used by the appointed AQC to assess the potential air quality impacts at the relevant European Sites, as per the overarching project brief agreed with Natural England[1].

1.2 Approach

The geographic location of these European sites defined the HRA Study Area which is shown in Figure 1. The brief identifies specific highway locations where the HRA process needs to be carried out for this work based on their proximity to six European sites in the area of the partnership authorities.

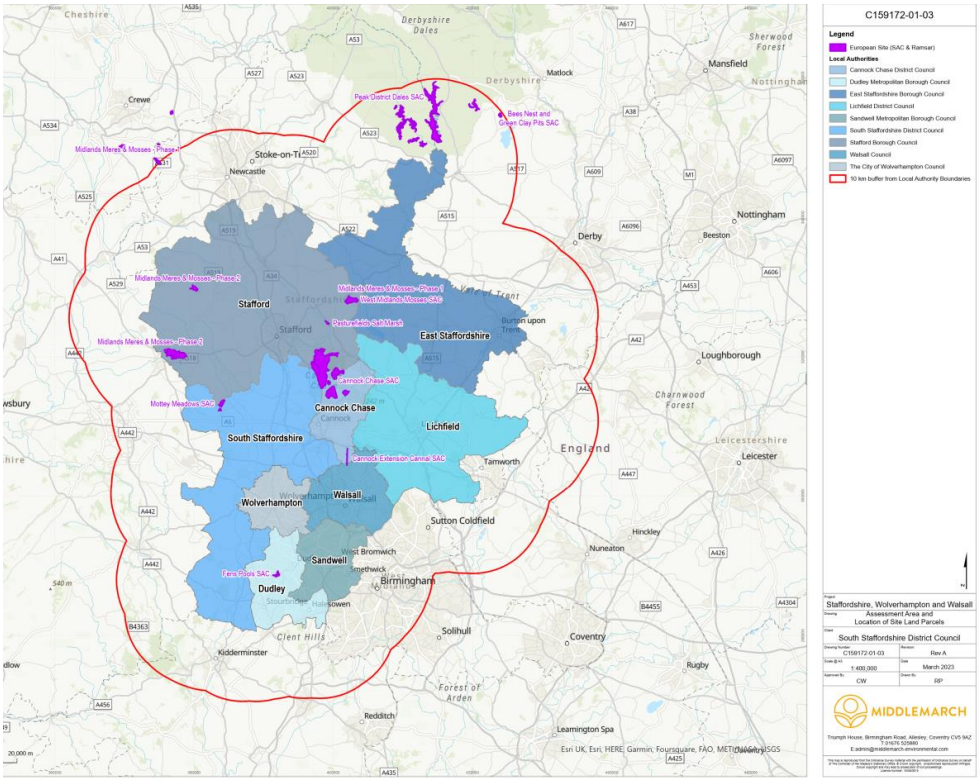

Figure 1 - European sites locations in the HRA Study Area

Based on the project brief, ten Recommended Assessment Points (RAPs) were identified, which are within 200m of the relevant European sites are shown in Figure 2. These RAP sites are shown in Table 1.

Table 1 RAP locations in the HRA Study Area

European sites	RAP Ref	Road Type	Road Name
Cannock Chase SAC	RAP 1	A	A513
	RAP 2	A	A460 Rugeley Road
	RAP 3	Minor	Camp Road
Pasturefields Salt March SAC	RAP 4	A	A51

[1] Creation of an Air Pollution Evidence Base Brief to Support Local Plan HRA, Staffordshire, Wolverhampton, Walsall, Sandwell and Dudley, Middlemarch Environmental Ltd, RT-MME-26+283-01, Rev B, March 202

European sites	RAP Ref	Road Type	Road Name
Midlands Meres & Mosses Phase 2 Ramsar	RAP 8	Minor	Unnamed road (East of Cop Mere)
	RAP 25	Motorway	M6
Cannock Extension Canal SAC	RAP 10	A	A5 Watling Street
	RAP 11	B	B4154 Lime Lane
Fens Pools SAC	RAP 12	A	A4101 High Street
	RAP 13	A	A461 Stourbridge Road

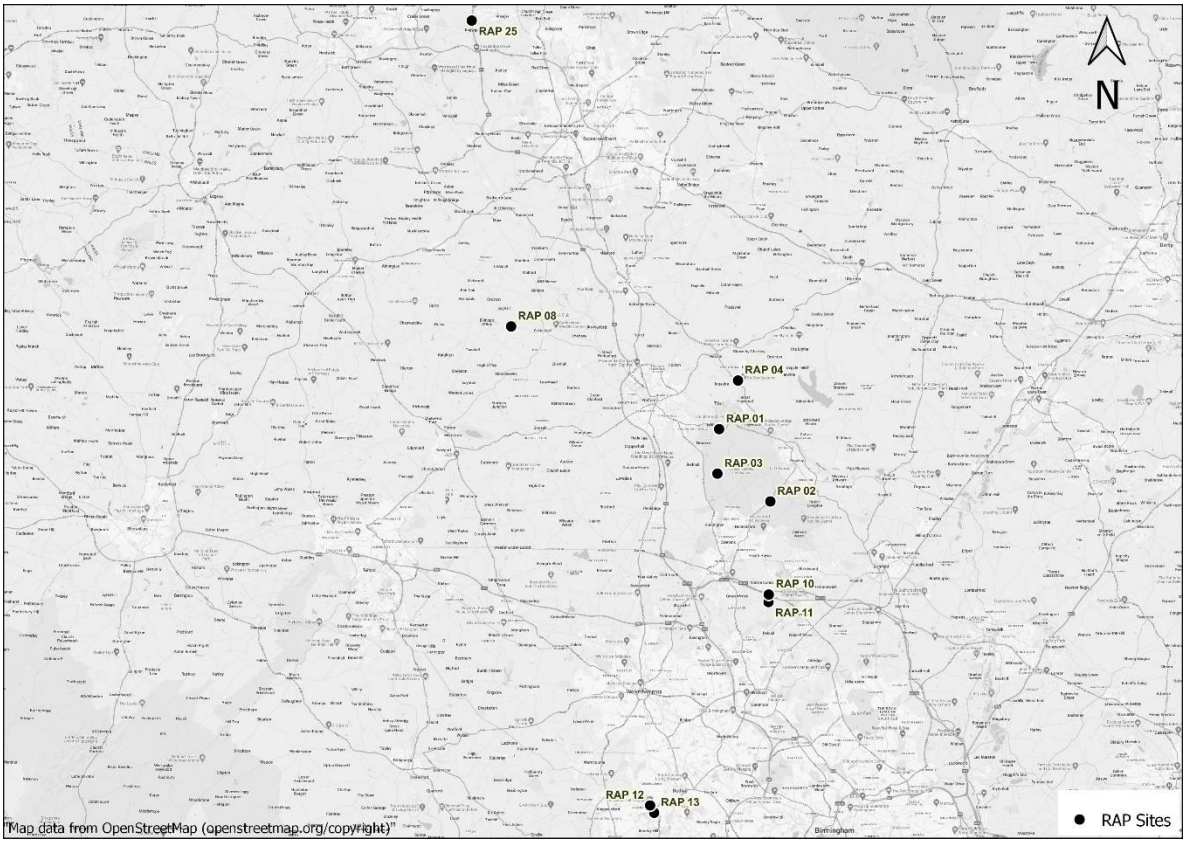

Figure 2 - RAP locations

The base year model was calibrated for 2022. Traffic volumes were calculated within the study area (including RAP locations) and the results were passed on the Sweco UK AQC team to calibrate the baseline AQ model.Traffic modelling and forecasting for the study area was carried out with the PRISM 5.3 model, acquired from Transport from West Midlands.

Forecast year traffic volumes are calculated for 2042 within the study area (including RAP locations) and the results were passed on the Sweco UK AQC team for the AQ analysis for the following scenarios:

a. Future Year 'Do nothing' assessment (2042): Annual Average Daily Traffic (AADT) forecast by assuming no growth inside the partnership authorities and TEMPro growth outside of the partnership authorities;
b. Future Year with Local Plan 'In-combination' assessment (2042): AADT forecast by assuming Local Planning-based growth inside all partnership authorities and TEMPro growth outside of the partnership authorities.

The objective of the traffic modelling is to identify RAP locations where traffic is expected to increase in the in-combination scenario, relative to the 'do nothing' scenario, above the Natural England guidance[2] criteria of:

- A net increase of AADT of ≥1,000 domestic vehicles[3]; and/or
- A net increase of Heavy AADT of ≥200 HGV[4] or greater.

Please note that as a general practice, the AQ team will be using a more stringent first criterion to remain conservative in the calculations, i.e. AADT of ≥1,000 total vehicles.

1.3 Structure of Report

Following this introductory section, this report has been prepared according to the following structure:

- Section 2: Model Standards;
- Section 3: Base Year Travel Demand Development;
- Section 4: Base Year Network Development;
- Section 5: Base Year Model Calibration and Validation (2022);
- Section 6: Local Planning Data Collection;
- Section 7: Forecast Year Network Development;
- Section 8: Forecast Year Travel Demand Development;
- Section 9: Forecast Model Assignment (2042);
- Section 10: Volumetric Output for Air Quality Modelling;
- Section 11: Summary.

[2] Natural England (June 2018) Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations (Available at: http://publications.naturalengland.org.uk/publication/4720542048845824)
[3] Domestic vehicle means a vehicle that does not exceed 5.3 metres (17' 4") long or 2.25 (7' 4") metres high. It must be a 'passenger vehicle' which means a vehicle constructed solely for the carriage of passengers and their effects and not drawing a trailer (https://www.lawinsider.com)
[4] HGV flows (as AADT) will be calculated by using "Road Traffic Forecast 2018" (RTF 2018) and/or "National Road Traffic Projections 2022" (NRTF 2022) traffic growth rates, which are standard sources for HGV forecasts.

2 Modelling Tools and Standards

2.1 PRISM 5.3 Model

The PRISM 5.3 model system is a variable demand multi-modal transport model developed for the West Midlands region by RAND Europe and Mott MacDonald. It consists of detailed network models covering the highway and public transport (PT) systems, which are linked to a disaggregate model of travel demand.

The PRISM 5.3 model provided by Transport for West Midlands, was calibrated tobase year 2022 using traffic volume data within the study area. The model was then used to forecast traffic volumes for the year 2042 for the HRA assessment.

2.2 PRISM 5.3 Model Study Area

The PRISM 5.3 model has two main areas of network coverage. These are as follows:

Fully Modelled Area (FMA) – This is the area over which significant impacts of land use and transportation infrastructure interventions have influence. The fully modelled area is further subdivided into:

- Area of Detailed Modelling (AoDM) - comprises the West Midlands Metropolitan Area.This is the area in which significant impacts of West Midlands (WM)-based interventions are certain. Modelling in this area is characterised by representation of all trip movements, smaller zones and, detailed network representation with junction modelling (including flow metering and blocking back). The AoDM comprises the seven metropolitan districts; and
- Rest of the Fully Modelled Area (RotFMA) – consists of an intermediate area. This is the area over which the impacts of WM-based interventions are considered to be quite likely but relatively weak in magnitude. It is characterised by representation of all trip movements, somewhat larger zones and less network detail than for the AoDM and speed/flow modelling (link-based).

External Area – This includes the remainder of the West Midlands Region and the rest of Great Britain. The impacts of WM base interventions are assumed to be negligible here. In terms of network, the representation of the external area is skeletal and fixed speed modelling is used. Demand is also only partially represented (i.e. not full flows), characterised by large zones and external to external trips through the FMA only.

2.3 PRISM 5.3 Network structure

Area of Detailed Modelling

The Area of Detailed Modelling is coded with a high level of detail. All key minor and major roads are modelled. Key roads are considered to be those that carry significant levels of traffic or provide means of access and egress to important developments within the Area of Detailed Modelling. Capacity restraints are modelled through a combination of junction coding and speed/flow relationships.

Rest of the Fully Modelled Area

The Rest of the Fully Modelled Area is represented in less detail, and for all roads capacity restraint is modelled using link-based speed/flow relationships only. Motorway junctions considered to be of strategic importance that are situated within the Rest of the Fully Modelled area include detailed junction coding.

External Area

The External Area represents the rest of Great Britain in a skeletal network. Junction coding is not used, and fixed “cruise” speeds are used for all roads.

2.4 Model Acceptance Criteria

The standard validation and convergence criteria for highway assignment models are specified in TAG Unit M3.1. The TAG criteria are used for calibrating and validating transport models, and it applies to the Fully Modelled Area.

In this project, the overwhelming majority of the HRA study area fell on the External Area. The scope of this project excluded major model expansion that would internalise the external model area and perform model calibration or validation to make the model fit for purpose using TAG. Therefore, we developed a bespoke acceptance criteria by relaxing the TAG criteria and for the external part of the model. In this project the bespoke individual link flow validation acceptance criteria are 85% of link values within 50% of observed flows.

3 Data Collection

3.1 Traffic Count Data

Sweco collected baseline Annual Average Daily Traffic (AADT) data by vehicle type (cars, Light Goods Vehicles (LGV), and Heavy Goods Vehicle (HGV)). Data sources included WebTRIS (Highway England), Road Traffic Statistics (Department for Transport), and VivaCity database (local authorities' Highway Departments). This data was augmented by the TCC's own data collection carried out by ATC, at three RAP locations. Traffic flow data was used to validate the transport model in the study area.

3.2 Local Planning Data

For HRA, an Uncertainty Log in line with TAG recommendations has been produced that includes the latest assumptions about the likely future-year developments. This represents a step change in the transparency and consistency of future year assumptions included in the HRA future-year model.

The Uncertainty Log was developed by Sweco using the most up-to-date information collected from HRA Partner authorities such as:

- South Staffordshire District Council
- Stafford Borough Council
- East Staffordshire Borough Council
- Lichfield District Council
- Cannock Chase District Council
- City of Wolverhampton Council
- Dudley Metropolitan Borough Council
- Walsall Metropolitan Borough Council
- Sandwell Metropolitan Borough Council

Table 2 presents the Uncertainty Log, which collates the number of dwellings and jobs collated based on the considered uncertainty criteria: "near certain", "more than likely" and "reasonably foreseeable". The detailed uncertainty log is presented in Appendix B.

Table 2 – Total number of additional households and employment based on the emerging Local Plans

Partnership Authority	Households (unit)	Employment (persons)
Cannock Chase	5,685	8,925
Dudley	4,435	598
Sandwell	8,492	8,153
Walsall	4,400	15,043
Wolverhampton	6,177	4,825
Lichfield	8,561	6,193
South Staffordshire	5,679	15,390
Stafford	5,411	7,870
East Staffordshire	9,642	10,798

4 Base Year Network Model (2022)

This section details the Base year highway network development steps undertaken.

PRISM 5.3 2016 base year model and zone system was adopted for this work by permission from the Transport for West Midlands. The 2016 highway network was taken at face value.

The 2016 highway network was updated to make it fit for the purpose of the HRA modelling. This involved adding unclassified roadways to the network at RAP locations 3 and 8, which are both located on unclassified roads that were not included in the PRISM 5.3 model. Network updates are shown in Figure 3 along with the study area considered for TTC.

The generalised cost coefficients of the model were updated to reflect year 2022.

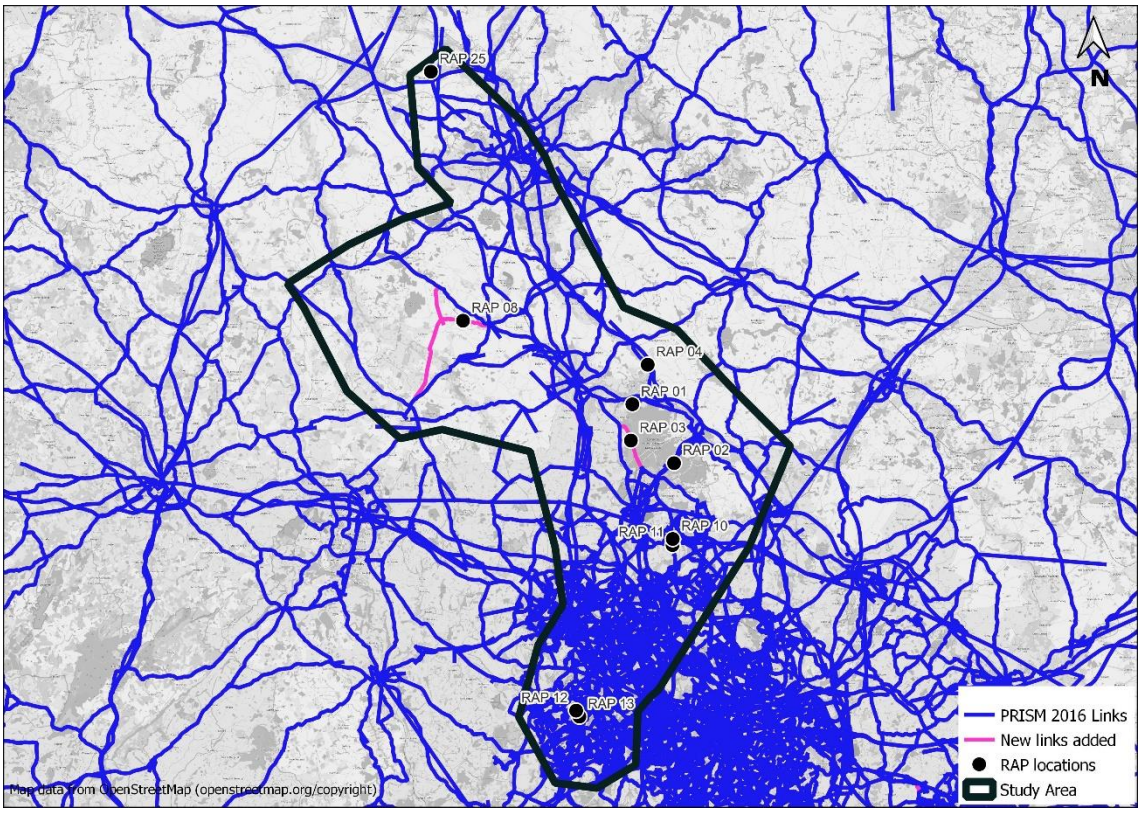

Figure 3 - Updated Base Year Network (2022)

The following changes have been carried out in the model network within the HRA study area to add missing network elements and to improve model validation in the base year (2022):

- Adding new links near RAP 3 and RAP 8 sites as shown in Figure 3. This was required to provide forecasts at the unclassified roadway sections which were not part of the PRISM network.
- Updating motorway link parameters in the external part of the model for i.e., Volume Delay Functions (VDF), shown in Table 3. Specifically, increasing the capacity link type 12 and applying constant VDF function for link type 13 helped prevent unrealistic congestion that resulted from the default PRISM link parameters.
- Method of zone connector loading have been changed to fixed proportion-based connector choice rather than shortest path-based connector choice. This was required to provide additional stability to the forecast in the external part of the model.

- Extended the external part of the model and switched the assignment method to fixed speed in the area around Stafford as shown in Figure 4. This was required to provide additional stability to the forecast in the external part of the model.

Table 3 – Updated Link types

Road class	Description	Speed limit	Previous Capacity (PCU/lane)	Updated Capacity (PCU/lane)	Previous VD function	Updated VD function
12	External Motorway	60 to 70mph	2330	2100	BPR2 (0.11 1.22 0.00)	BPR2 (0.11 1.22 0.00)
13	Non-Motorway External	40 to 50mph	2100	2100	BPR2 (0.22 1.21 0.00)	constant

The model area that was converted from rest of fully modelled area to external area is shown on Figure 4 in pink.

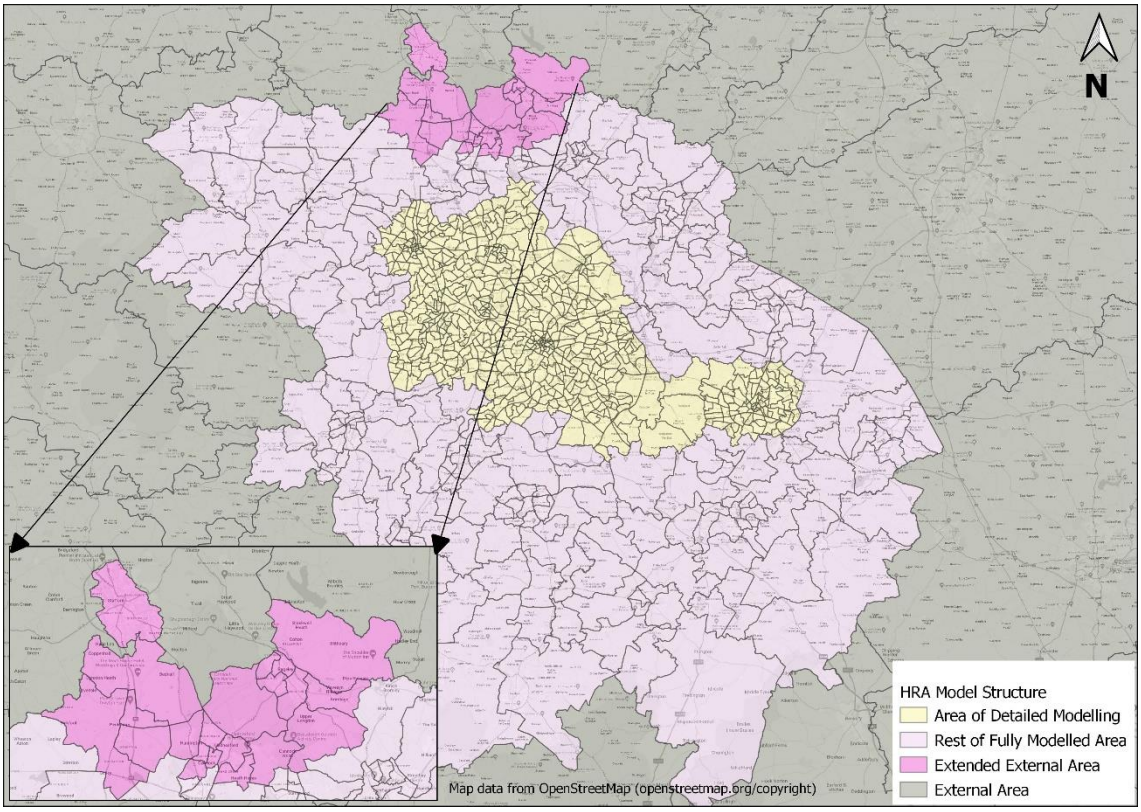

Figure 4 - Extended External model area

5 Base Year Travel Demand Model (2022)

5.1 Overview

This section details the Base year (2022) demand development steps undertaken.

Base year cars traffic flows were established by the following process:

1. Base year (2022) observed AADTs were established from available traffic counts (source: HE, DfT, Vivacity) and new traffic counts commissioned as part of this project.
2. Base year (2022) modelled AADT were established by using the PRISM 5.3 model that was made available to the TCC by Transport for West Midlands as follows:
    a. The available PRISM 5.3 model (2016) model was forecast to 2022 by using Department for Transport's TEMPro database for the entire model area;
    b. Baseline (2022) AM, Interpeak (IP) and PM forecast were assigned to the 2016 model network, assuming that network changes between 2016 and 2022 were negligible;
    c. 2022 model AADT was established by combining the AM, IP and PM peak model flows and using time of day factors.
3. Base year (2022) actual AADT was calculated by using post-processing to correct for the limited accuracy of the external part of the PRISM 5.3 model.

LGV and HGV traffic flow calculation followed a similar process, except that instead of using TEMPro growth factors, RTF growth factors were applied.

5.2 Trip End Forecast

For car trips, TEMPro v8.0 was used to calculate trip end growth factor at model zone level. The growth factors are derived as Origin and Destination factors for each individual purpose (commute, employer business and others) and time period (AM, IP and PM peak periods). Growth factors have been derived for car trips between the 2016 and the 2022 base year. The growth was applied to model zones via the TEMPro to model zone correspondence.

For LGV and HGV trips, freight growth factors have been extracted from RTF 2018 Scenario 1 as shown in Table 4.

Table 4 – RTF goods vehicle growth factors

Vehicle Type	2016-2022
LGV	11.30%
HGV	-0.54%

5.3 Trip Distribution

The trip ends values for base year 2022 were calculated based on the TEMPro v8.0 growth factors applied to the 2016 base totals. These values were then applied using the base demand distribution through a Furness matrix factoring to create development growth matrices for 2022. The 2016 base origin/destination matrices were taken as a starting point, and an iterative doubly constrained factoring process was applied, targeting a match on the zonal trip origins. The sum of the origins from the matrices was checked against the target origins, to ensure the Furness process was able to match the required number of trips. The 2022 base year matrices are compared with 2016 matrix totals in Table 5 to Table 7.

Table 5 – Study area trip matrix comparison between 2016 and BY – AM peak period

Purpose	BY2016	BY2022	Growth %
Employer Business	14,044	14,854	5.77%
Work	87,747	92,912	5.89%
Other	74,517	79,184	6.26%
LGV	14,971	16,663	11.30%
HGV	7,295	7,255	-0.54%
Total	**198,574**	**210,869**	**6.19%**

Table 6 – Study area trip matrix comparison 2016 and BY – IP peak period

Purpose	BY2016	BY2022	Growth %
Employer Business	11,090	11,665	5.18%
Work	26,551	27,915	5.14%
Other	126,560	133,307	5.33%
LGV	15,560	17,319	11.30%
HGV	7,136	7,098	-0.54%
Total	**186,897**	**197,303**	**5.57%**

Table 7 – Study area trip matrix comparison 2016 and BY – PM peak period

Purpose	BY2016	BY2022	Growth %
Employer Business	14,494	15,218	4.99%
Work	80,689	84,591	4.84%
Other	98,481	103,986	5.59%
LGV	11,907	13,253	11.30%
HGV	5,648	5,617	-0.54%
Total	**211,220**	**222,665**	**5.42%**

6 Base Year Assignment (2022)

This section details the base year highway model assignment undertaken.

Base year (2022) AM, IP and PM peak period trips were assigned to the 2016 model network, assuming that network changes between 2016 and 2022 were negligible;

Base year (2022) model AADT was established by combining the AM, IP and PM peak period model flows using time of day factors 3, 8 and 3, respectively.

Base year (2022) actual AADT was calculated by using post-processing to correct for the limited accuracy of the external part of the PRISM 5.3 model by using the following procedure:

- Model flow-based forecast:
    - Links with a traffic count: *2022 actual AADT = 2022 Count data*
    - Links without a traffic count: *2022 actual AADT = [2022 Count Data – Model flow (count location)] * Model flow (non-count location) / Model flow (count location) + Model flow (non-count location)*

7 Forecast Year Network Model (2042)

This section details the forecast year highway network development steps undertaken.

PRISM 2041 model and zone system was adopted for this work by permission from the Transport for West Midlands. The 2041 highway network was taken at face value.

The 2041 highway network was updated to make it fit for the purpose of the HRA modelling. The changes implemented in the 2041 network was identical to that of the 2022 network changes (please see chapter 4).

The generalised cost coefficients of the model were updated to reflect year 2042.

8 Forecast Year Travel Demand Model (2042)

8.1 Overview

This section details the Forecast Year 2042 demand development steps undertaken.

'In Combination' scenario car traffic forecast was established by the following process:

1. Local planning-based growth was generated by using planning data collected from the nine collaborating local authorities:
    a. Data was requested from partnership authorities about the adopted and emerging local plans, including land use type, location, size and level of uncertainty;
    b. Developments with three levels of uncertainty were collected for the purpose of the forecast: near certain, more than likely and reasonably foreseeable;
    c. Additional data was requested from partnership authorities, including missing data about land use type, size of development, level of uncertainty, and the adopted and emerging local plan expiration dates;
    d. Traffic growth for the period of the adopted local plan was calculated by using 1) development quanta 2) average TEMPro -based trips rates (i.e. trip/job or trip/HH) and 3) employment density data (job/area) issued by the Homes and Community Agency[5];
2. Traffic growth for the period between the expiration of the adopted local plan and 2042 was forecast by using TEMPro v8.0 growth rates.
3. External traffic growth in the area outside the combined partnership authority area was calculated by using TEMPro v8.0 growth rates and was applied by using matrix Furnessing;
4. Forecast model peak hour volumes were determined by using the PRISM 5.3 model for the 2042 in the AM peak, Interpeak and PM peak periods;
5. Forecast (2042) model AADT was calculated by combining the AM, IP and PM peak model flows and using time of day factors.
6. Forecast (2042) actual AADT was calculated by using a post-processing to correct for the limited accuracy of the PRISM 5.3 model.

For the 'Do nothing' scenario the 'In combination' scenario's process was applied, except that no traffic growth was assumed for the period of the adopted local plan for the nine partnership authorities (step 1) was excluded.

LGV and HGV traffic forecast followed a similar process, except for the following differences:

- Background traffic growth was calculated by using RTF[6] growth factors instead of TEMPro growth between the expiration of the adopted local plan and 2042, and in the external part of the mode between 2022 and 2024;

- Local plan-based traffic growth was generated by using LGV and HGV trip generation rates obtained from TRICS[7], rather than TEMPro.

8.2 Trip End Forecast

For car trips, Local Planning Data and TEMPro v8.0 was used to calculate trip end growth factor at model zone level. The growth factors are derived as Origin and Destination factors for each individual purpose (commute, employer business and others) and time period (AM, Interpeak and

[5] Employment Density Guide, 3rd Edition, Homes and Communities Agency, November 2015
[6] RTF Road Traffic Forecast 2018, Moving Britain Ahead, Department for Transportation, 2018
[7] March Area Transport Study – Trip Generation Methodology, Technical Note, Capita, 2019

PM peak periods). Growth factors between 2022 and the expiration date of the Adopted Local Plan were derived from the Local Plans of the partnership authorities. Growth factors between the expiration date of the Adopted Local Plan and 2042 were derived from TEMPro growth factors.

Local Planning and TEMPro based growth periods by Local authority is shown in Table 8.

Table 8 - Local Plan based and Tempro-based forecast growth periods by local authority

Local Authority	Adopted Local Plan Expiration	Emerging Local Plan Expiration	Period covered by Local Plan	Period covered by TEMPro
South Staffordshire District Council	2028	2041	2022-2028	2028-2042
Stafford Borough Council	2031	NA	2022-2031	2031-2042
East Staffordshire Borough Council	2031	2043	2022-2031	2031-2042
Lichfield District Council	2029	2043	2022-2029	2029-2042
Cannock Chase District Council	2028	2040	2022-2028	2028-2042
City of Wolverhampton Council*	2016*	2042	2022-2042	-
Dudley Metropolitan** Borough Council	NA**	NA	2022-2028	2028-2042
Walsall Metropolitan** Borough Council	NA**	NA	2022-2028	2028-2042
Sandwell Metropolitan Borough Council	2026	2041	2022-2026	2026-2042

*Adopted local plan period ended in 2016 hence Emerging local plan data was used for 2022-2042
**Adopted local plan period assumed to end in 2028 due to lack of data provision at time of assessment

For LGV and HGV trips, freight growth factors have been extracted from RTF 2018 Scenario 1 as shown in Table 9.

Table 9 – RTF goods vehicle growth factors

Vehicle Type	2022-2042
LGV	27.50%
HGV	4.48%

8.3 Trip Distribution

Tripend forecasts between 2022 and 2024 were distributed using a gravity model to create development growth matrices for 2022. The gravity model was applied by trip purpose (commute, employer business, other) and time period (AM, interpeak and PM peak periods). The gravity model used target tripends from the gravity model, generalised costs from the highway network and trip length distribution data from a similar location just outside the WMCA area (Worcestershire). The resulting matrices were added to the base year (2022) origin/destination matrices to yield the 2042 forecast matrices. The sum of the origins from the matrices was checked against the target origins, to ensure the gravity model process was able to match the required number of trips. The 2042 trip table totals are compared with the 2022 totals in Table 10 to

Table 12.

Table 10 – Study area trip totals in the BY and FY scenarios – AM peak period

User Type	BY2022 (trips)	Do Nothing FY2042 (trips)	In combination FY2042 (trips)	Growth % (In combination vs Do Nothing)
Employer Business	14,854	16,523	19,954	21%
Work	92,912	100,849	124,235	23%
Other	79,184	87,665	117,962	35%
LGV	16,662	21,246	24,286	14%
HGV	7,255	7,580	9,426	24%
Total	210,867	233,863	295,863	27%

Table 11 – Study area trip totals in the BY and FY scenarios – IP period

User Type	BY2022 (trips)	Do Nothing FY2042 (trips)	In combination FY2042 (trips)	Growth % (In combination vs Do Nothing)
Employer Business	11,665	12,733	19,410	52%
Work	27,915	30,076	41,477	38%
Other	133,307	149,788	243,578	63%
LGV	17,319	22,081	26,032	18%
HGV	7,098	7,416	9,043	22%
Total	197,304	222,094	339,540	53%

Table 12 – Study area trip totals in the BY and FY scenarios – PM peak period

User Type	BY2022 (trips)	Do Nothing FY2042 (trips)	In combination FY2042 (trips)	Growth % (In combination vs Do Nothing)
Employer Business	15,218	16,583	20,601	24%
Work	84,591	91,039	112,077	23%
Other	103,986	115,391	159,755	38%
LGV	13,253	16,898	19,633	16%
HGV	5,617	5,869	6,700	14%
Total	222,665	245,780	318,766	30%

The tables show that in the AM and PM peak periods, car trips between the ‘Do Nothing’ scenario and the ‘in combination’ scenario will increase by 21-38%, depending on the trip purpose. Car trip growth will be higher in the interpeak period, between 38-63%. Increase in LGV and HGV trips is similar across all time periods, i.e. between 14-22%.

9 Forecast Year Assignment (2042)

This section details the forecast year HW model assignment undertaken.

Forecast year (2042) AM, IP and PM peak period trips were assigned to the 2042 model network. Forecast year (2042) model AADT was established by combining the AM, IP and PM peak period model flows using time of day factors 3, 8 and 3, respectively.

Forecast year (2042) actual AADT was calculated by using post-processing to correct for the limited accuracy of the external part of the PRISM 5.3 model by using the following procedure:

- Model flow-based forecast (all scenarios) were calculated by using model link volumes:
  - Links with a traffic count: *2042 actual AADT = 2022 Count data – 2022 Model flow (count location)] + 2042 Model flow (count location)];*
  - Links without a traffic count: *2042 actual AADT = 2022 Count Data * [2022 Model flow (non-count location) / 2022 Model flow (count location)] – 2022 Model flow (non-count location)] + 2042 Model flow (non-count location);*
- Land use-based forecast growth factors between 2022 and 2042 were calculated to estimate average area-based growth by partnership authority:
  - *''Do nothing' Scenario*: Land use-based growth: *2042 actual AADT = 2022 Count data * 2042 TEMPro tripends / 2022 TEMPro tripends;*
  - *'In-combination' scenario:* Land use-based growth: *2042 actual AADT = 2022 Count data * Max (2042 TEMPro tripends / 2022 TEMPro tripends; (Local Plan tripends[8] + 2022 TEMPro tripends) / 2022 TEMPro tripends);*
- Final forecast:
  - If model flow-based growth was within a margin of error (-10 ‰ and +15 ‰) from Land use-based growth, the model flow-based forecast is used;
  - Otherwise, the land use-based forecast is used.

For LGV and HGV forecast, the same procedure was followed except that instead of using TEMPro forecast tripends, RTF2018 forecast tripends were used.

Traffic forecasts were carried out for the following scenarios:

- Future Year 'do nothing' assessment (2042)
- Future Year with Local Plan 'in-combination' assessment (2042)

[8] For the period between the end of the adopted local plan and 2042 TEMPro growth is used

Table 13 – Combined Total AADT in the BY and FY scenarios at the RAP sites

European sites	RAP Ref	Road Name	BY2022	Do Nothing FY2042	In combination FY2042	Difference (In combination vs Do Nothing)
Cannock Chase SAC	RAP 1	A513	10,529	11,662	11,825	163
	RAP 2	A460 Rugeley Road	12,161	13,610	14,117	507
	RAP 3	Camp Road	3,224	3,375	3,619	244
Pasturefields Salt March SAC	RAP 4	A51	9,128	9,949	10,222	273
Midlands Meres & Mosses Phase 2 Ramsar	RAP 8	Unnamed road (East of Cop Mere)	652	678	704	26
	RAP 25	M6	128,747	135,828	135,922	94
Cannock Extension Canal SAC	RAP 10	A5 Watling Street	27,863	29,578	31,642	2,064
	RAP 11	B4154 Lime Lane	10,841	11,164	12,381	1,217
Fens Pools SAC	RAP 12	A4101 High Street	24,372	26,114	26,823	709
	RAP 13	A461 Stourbridge Road	19,525	20,586	21,556	970

Table 14 – Combined HGV AADT in the BY and FY scenarios at the RAP sites

European sites	RAP Ref	Road Name	BY2022	Do Nothing FY2042	In combination FY2042	Difference (In combination vs Do Nothing)
Cannock Chase SAC	RAP 1	A513	223	233	234	1
	RAP 2	A460 Rugeley Road	469	488	488	0
	RAP 3	Camp Road	69	72	74	2
Pasturefields Salt March SAC	RAP 4	A51	739	769	769	0
Midlands Meres & Mosses Phase 2 Ramsar	RAP 8	Unnamed road (East of Cop Mere)	31	32	32	0
	RAP 25	M6	26,396	27,645	27,722	77
Cannock Extension Canal SAC	RAP 10	A5 Watling Street	4,207	4,418	4,392	-26
	RAP 11	B4154 Lime Lane	184	191	191	0
Fens Pools SAC	RAP 12	A4101 High Street	1,030	1,084	1,071	-13
	RAP 13	A461 Stourbridge Road	441	458	458	0

From

Table 13 and

Table 14, the resulting increase in total daily highway traffic (AADT) at the RAP sites between the ‘Do Nothing’ scenario and the ‘in combination’ scenario ranged widely depending on the road type. Out of the five European sites, only the **Cannock Extension Canal SAC area showed higher than the 1,000 total vehicle/day threshold by 2042. This exceedance was recorded at both RAP 10 (A5 Watling Street) at 2,064 veh/day and RAP 11 (B4154 Lime Lane) at 1,217 veh/day**, due to increase in demand contributed by the Local plan developments around this site. There was no RAP site that showed exceedance above the HGV traffic increase threshold of 200 veh/day.

The results of the forecasts are shown in Appendix C. The model plots shows that in and around Stafford region and Dudley area are having lower than 1000 vehicle/day threshold by 2042 indicating lesser impact due to the local plan developments in these regions. But as seen above, the Cannock chase region has impact due to local plan development leading to higher than 1000 vehicle/day threshold by 2042. Detailed link level forecast results for the entire study area, that was passed onto the AQ team, is shown in Appendix D.

10 Summary

South Staffordshire District Council in collaboration with the Partnership Authorities (Local Planning Authorities detailed below) commissioned Sweco UK to undertake traffic and air quality modelling to assess the air quality impacts on The European sites (formerly Natura 2000 sites) in study area formed by the partnership authorities.

Sweco used the PRISM 5.3 model to first validate the model for year 2022 and then to prepare the traffic forecasts for year 2042 for three scenarios: ‘do nothing’, ‘in combination’. Due to the limitation in model robustness in the study area, a post processing was carried out to benchmark the forecast against average trips growth calculated from the local planning data and TEMPro.

The results show that out of the ten RAP sites, two locations (RAP 10 and RAP 11) recorded a traffic increase above the HRA thresholds. Detailed link level results for the entire study area can be found in Appendix D.

Appendix A: Middlemarch Environmental Ltd. Assessment

Chartley Moss, Rationale for Scoping Out

Within 200m of Chartley Moss (which constitutes a land parcel of both West Midlands Mosses SAC and Midlands Meres and Mosses Ramsar Phase 1 Site) it is considered that adoption of land use allocations by the partnership authorities local plans could only result in significant traffic growth on the A518 (RAP 5).

This is due to all other roads within 200m either only:

- Providing access to private residences, or
- Being a single tracked road, which does not act as a link between settlements or a route to the provision of services.

It is considered highly unrealistic that the adoption of land use allocations (from one or more partnership local plans) could result in an increase in AADT of 1000 or greater domestic vehicles or 200 or greater HGVs along a single-track road, which does not provide a clear link between two settlements or provide a route linking areas or residential growth to employment or services.

As such the A518 is the only key road identified in Table 1.1.

Section 4.19 of Natural England's 2018 guidance (see Section 1.1.3) states:

"An early understanding of the spatial distribution of features within a site can help to decide whether or not appropriate assessment will be required… [if] *any sensitive qualifying features are not present within the area to be affected by emissions (and Natural England's advice is that there is no conservation objective to restore the features to that area), it will be relatively straightforward to ascertain that the plan or project poses no credible air quality risk to it*."

The only habitat within the SAC and Ramsar site which lies within 200m of the A518 is an area of broad-leaved deciduous woodland within Parcel 5 of the underlying Chartley Moss SSSI[6]. Broad-leaved deciduous woodland is not a qualifying feature of the SAC designation, a criterion for its selection as a Ramsar site or a habitat upon which the species (which form its criterion for Ramsar selection) rely.

In line with Natural England's 2018 guidance, no further assessment should be required on the Chartley Moss land parcel of the West Midlands Mosses SAC and the Midlands Meres and Mosses Ramsar Phase 1 Site.

Aqualate Mere, Rational for Scoping Out

No 'A' or 'B' roads lie within 200m of the boundary of Aqualate Mere.

Only two minor roads (Walkley Bank and Guild Lane) lie within 200m of the site boundary.

Both roads are single track along their entire length.

Walkley Bank (RAP 6) links the hamlets of Meretown and Forton.

Guild Lane (RAP 7) does not provide a clear link between any settlements or provide a route linking areas or residential growth to employment or services, rather it functions primarily to provide access to a small capacity car park by which members of the public can access Aqualate Mere.

Due to their inherent low traffic capacity and their lack of obvious connectivity between notable settlements, places of employment or services, it is considered highly unrealistic to consider that the adoption of land use allocations (from one or more local plans) would result in an increase in AADT of 1000 (or greater) domestic vehicles or 200 (or greater) HGVs on either of the minor roads within 200m of the boundary of Aqualate Mere.

Section 4.17 of the Natural England's 2018 Guidelines (see Section 1.1.3) states:

"Usually, only those European sites present within 200m of the edge of a road on which a plan or project will generate traffic will need to be considered when checking for the likelihood of significant effects from road traffic emissions."

Based on the information available it appears highly unlikely that the future adoption of partnership local authorities' local plans (alone or in combination) could result in a measurable increase in annual traffic generation on either Walkley Bank or Guild Lane.

In line with Natural England's 2018 guidelines[7] no further assessment should be required on the Aqualate Mere land parcel of the Midlands Meres and Mosses Phase 2 Ramsar Site.

Mottey Meadows, Rational for Scoping Out

No 'A' or 'B' roads lie within 200m of the boundary of Mottey Meadows SAC.

Only two minor roads (Marston Road and Gay Lane) lie within 200m of the site boundary.

Both roads are single track along their entire length.

Gay Lane only provides access to a single private residence.

Marston Road (RAP 9) links the village of Wheaton Aston to the hamlet of Marston.

Due to their inherent low traffic capacity and their lack of obvious connectivity between notable settlements and places of employment or services, it is highly unrealistic to consider that the adoption of land use allocations (from one or more of the partnership authorities' local plans) would result in an increase in AADT of 1000 (or greater) domestic vehicles or 200 (or greater) HGVs on either of the minor roads within 200m of the boundary of Mottey Meadows.

Based on the information available it appears highly unlikely that the future adoption of partnership local authorities' local plans (alone or in combination) could result in a measurable increase in annual traffic generation on either Gay Lane or Marston Road.

In line with Natural England's 2018[8] guidelines no further assessment should be required on Mottey Meadows SAC.

Betley Mere, Rational for Scoping Out

Betley Mere (a land parcel of the Midlands Meres and Mosses Ramsar Phase 1 Site) does not lie within a partnership authorities' boundary but does lie within 10km of a jurisdictive boundary.

No 'A' or 'B' roads lie within 200m of the Betley Mere land parcel of the Midlands Meres and Mosses Ramsar Phase 1 Site.

Only one minor road (Cracow Moss) lies within 200m of the site boundary.

Cracow Moss (RAP 14) only provides access to a small number of scattered private residences.

The road is single track along its entire length.

Due to its inherent low traffic capacity and lack of any connectivity between notable settlements and places of employment or services, it is highly unrealistic to consider that the adoption of land use allocations (from one or more of the partnership authorities' local plans) would result in any increase in AADT on Cracow Moss.

In line with Natural England's 2018 guidelines9 no further assessment should be required on the Betley Mere land parcel of the Midlands Meres and Mosses Ramsar Phase 1 Site.

Wynbunbury Moss, Rational for Scoping Out

No part of the Wynbunbury Moss (a land parcel of the Midlands Meres and Mosses Phase 1 Ramsar Site) lies within a partnership authorities' boundary, or within 10km of any jurisdictive boundary.

No 'A' roads lie within 200m of the boundary of Wynbunbury Moss and only one B road, Stock Lane is present (the B5071). Where Stock Lane is present within 200m of the site it is either at the very limit of the 200m deposition distance buffer or it is separated from the Ramsar site by intervening residential development (the village of Wybunbury). It is considered that the residential developments would likely act as anthropogenic physical barriers, notably reducing the dispersal distance of any air pollution, nitrogen deposition and acidification.

Stock Lane (RAP 22) links the village of Wynbunbury to the village of Shavington.

Based on the information available it appears highly unlikely that the future adoption of partnership local authorities' local plans (alone or in combination) could result in a measurable increase in annual traffic generation between the villages of Wynbunbury to the village of Shavington.

In line with Natural England's 2018 guidelines10 no further assessment should be required on the Wynbunbury Moss land parcel of the Midlands Meres and Mosses Phase 1 Ramsar Site.

Black Firs & Cranberry Bog, Rational for Scoping Out

No part of the Black Firs and Cranberry Bog (a land parcel of the Midlands Meres and Mosses Phase 2 Ramsar Site) lies within a partnership authorities' boundary, or within 10km of any jurisdictive boundary.

Only one A road, Newcastle Rd (the A531) and one B road (B5500) lies within 200m of the boundary of the site.

Newcastle Rd (RAP 23) links several small villages and hamlets, Madeley Heath, Bowsey Wood, Wrinehil, Betley, New Thorntree, Hough, Shavington and Blakelow. It is considered highly unlikely that the future adoption of partnership local authorities' local plans (alone or in combination) could result in a measurable increase in annual traffic generation between these villages.

The B5500 runs north of the site and only likes the hamlet of New Thorntree to the hamlet of Balterley.

Only two minor roads are within 200m of the boundary of the site, Waybutt Lane and Post Office Lane.

Waybutt Lane provides access (off of the A531) to a single farm and the village of Chorlton.

Post Office Lane (RAP 24) provides an alternative access from the hamlet of New Thorntree to the B5500 and is single track along the majority of its length.

Based on the information available it appears highly unlikely that the future adoption of partnership local authorities' local plans (alone or in combination) could result in a measurable increase in annual traffic generation between the hamlets of New Thorntree and Balterley or result in additional trips to/from the village Chorlton.

In line with Natural England's 2018 guidelines11 no further assessment should be required on the Black Firs and Cranberry Bog land parcel of the Midlands Meres and Mosses Phase 2 Ramsar Site.

Bees Nest & Green Clay Pits SAC, Rational for Scoping Out

No part of the Bees Nest and Green Clay Pits SAC lies within a partnership authorities' boundary, but it does lie within 10km of a jurisdictive boundary.

No 'A' or 'B' roads lie within 200m of the SAC boundary.

Only two minor roads, Manystones Lane (RAP 26) and Wirksworth Dale lie within 200m of the SAC boundary.

Both roads are single track along their entire length. Wirksworth Dale provides access to several fields. Manystone Lane links the villages of Bassington and Bolehill.

Based on the information available it appears highly unlikely that the future adoption of partnership local authorities' local plans (alone or in combination) could result in a measurable increase in annual traffic generation to the fields along Wirkworth Dale or between the villages of Bassington and Bolehill.

In line with Natural England's 2018 guidelines no further assessment should be required on the Bees Nest and Green Clay Pits SAC.

Peak District Dales SAC, Rational for Scoping Out

No part of the Peak District Dales SAC lies within a partnership authorities' boundary, but several land parcels are within 10km of a jurisdictive boundary.

In total 17 land parcels (of varying sizes) lie within 10km of the jurisdictive boundary of a partnership authority.

No 'A' or 'B' roads lie within 200m of any of the land parcels of the Peak District Dales SAC which are partly, or wholly, within 10km of a jurisdictive boundary of a partnership authority.

Whilst a large number of roads lie within 200m of the 17 land parcels, the vast majority only provide access to isolated private residences and farms or are farm tracks providing access to fields and so are not public highways.

It is considered that seven key roads lie within 200m of the land parcels considered (The Pinch, Liffs Road, Larkstone Lane, Leek Road, Parwick Lane and two unnamed roads). All are minor roads.

All seven roads are single track along their entire length.

None of the roads appear to function as a link between any notable settlements, to connect a settlement/s with places of employment (with the exception of agricultural access) or services.

Due to their inherent low traffic capacity and their lack of obvious connectivity between notable settlements and places of employment or services, it is highly unrealistic to consider that the adoption of land use allocations (from one of more of the partnership authorities' local plans) would result in an increase in AADT of 1000 (or greater) domestic vehicles or 200 (or greater) HGVs on any of the identified seven key roads within 200m of any of the land parcels of the Peak District Dales SAC.

Based on the information available, it appears highly unlikely that the future adoption of partnership local authorities' local plans (alone or in combination) could result in a measurable increase in annual traffic generation on any of the key roads.

In line with Natural England’s 201812 guidelines no further assessment should be required on the Peak District Dales.

Appendix B: Local Planning Data

Housing and Employment Uncertainty Log - Staffordshire, Wolverhampton, Walsall, Sandwell, and Dudley

Local Plan Name	Site Ref	Application no	Address	Easting	Northing	Property type	Uncertainty	Dwellings
Cannock Chase	C113c		Land to the West of Pye Green Road, Hednesford	398282	313528	Residential	Near Certain	150
Cannock Chase	C113d		Land to the West of Pye Green Road, Hednesford- Common Farm	398430	312852	Residential	0	3
Cannock Chase	C113f		Land west of Pye Green Road, Hednesford Cannock	398474	313164	Residential	Near Certain	59
Cannock Chase	C113g		Land west of Pye Green Road, Hednesford Cannock	398560	313972	Residential	Near Certain	51
Cannock Chase	C116a&b		Land south of A5190, Lichfield Road, Heath Hayes (Phase 1)	400574	309641	Residential	Reasonably foreseeable	700
Cannock Chase	C279a		Land east of Wimblebury Road at Bleak House, Heath Hayes	401935	310505	Residential	Reasonably foreseeable	400
Cannock Chase	C121		Land to the rear of Longford House, Watling Street, Cannock	396750	309253	Residential	Reasonably foreseeable	45
Cannock Chase	R221			406044	317151	Residential	Reasonably foreseeable	75
Cannock Chase	C178		County Grounds Depot, Cannock Road, Cannock	398593	310918	Residential	0	49
Cannock Chase	C457		108, 102-106 High Green Court, Cannock	397920	310150	Residential	Near Certain	8
Cannock Chase	C90b		Whitelodge, New Penkridge Road, Cannock	397022	310567	Residential	Near Certain	2
Cannock Chase	C237		268 Bradbury Lane, Hednesford	399375	313867	Residential	Near Certain	10
Cannock Chase	C384		77 Old Fallow Road, Cannock	398433	311133	Residential	Near Certain	11
Cannock Chase	R23		Main Road, Brereton (between Cedar Tree Hotel and Library)	405394	316242	Residential	Near Certain	27
Cannock Chase	C63		Land adjacent and to the rear of 419-435, Cannock Road, Hednesford	399861	312498	Residential	Reasonably foreseeable	25
Cannock Chase	C498		23 Walsall Road, Cannock, WS11 0GA	398240	309972	Residential	Reasonably foreseeable	12
Cannock Chase	C540a		Unit E Beecroft Court, Cannock, WS11 1JP	398231	310584	Residential	Reasonably foreseeable	20

Local Plan Name	Site Ref	Application no	Address	Easting	Northing	Property type	Uncertainty	Dwellings
Cannock Chase	R145		Market Street garages, Rugeley (incorporating BT telephone exchange)	404510	318283	Residential	Reasonably foreseeable	28
Cannock Chase	R139		Heron Court, Heron Street, Rugeley	404664	317988	Residential	Reasonably foreseeable	10
Cannock Chase	R9		Former Aelfgar School, Taylors Lane, Rugeley	404269	318281	Residential	Near Certain	58
Cannock Chase	C488		Land at 521 Pye Green Road, Hednesford, Cannock	398495	313411	Residential	Reasonably foreseeable	80
Cannock Chase	C64		Land at Rawnsley Road, Hazel Slade	401805	312662	Residential	Near Certain	60
Cannock Chase	C81		Land at Chapel Street, Heath Hayes	401276	310047	Residential	Reasonably foreseeable	38
Cannock Chase	C177		Land at Girton Road/Spring Street, Cannock	398483	309725	Residential	More than likely	24
Cannock Chase	C509		Park Road Offices, Cannock	397838	310368	Residential	Reasonably foreseeable	25
Cannock Chase	C349		Cromwell House, Mill Street, Cannock, WS11 0DP	398146	310078	Residential	Near Certain	11
Cannock Chase	C553		41 Mill Street, Cannock, WS11 0DZ	398308	310119	Residential	Reasonably foreseeable	15
Cannock Chase	C557		Cannock Chase High School, Lower Site Campus, Hednesford Road, Cannock, WS11 1JT	398485	310868	Residential	Reasonably foreseeable	84
Cannock Chase	C558		Springvale Area Service Office, Walhouse Street, Cannock, WS11 0DY	398392	309849	Residential	Reasonably foreseeable	10
Cannock Chase	C127/CE63		Former Rumer Hill Industrial Estate, Cannock	398712	309382	Residential	Reasonably foreseeable	99
Cannock Chase	R18		Land at The Mossley, off Armitage Road	405014	317472	Residential	Reasonably foreseeable	40
Cannock Chase	R25		Land at St Michael's Road, Brereton, Rugeley, WS15 1ET	405296	316258	Residential	Reasonably foreseeable	35
Cannock Chase	R208		Castle Inn, 141 Main Road, Brereton, Rugeley, WS15 1DX	405411	316383	Residential	More than likely	27
Cannock Chase	R144b		The Fairway Motel, Horse Fair, Rugeley, WS15 2EJ	404479	317903	Residential	Near Certain	17
Cannock Chase	R203		Lea Hall Miners Welfare & Social Club, Sandy Lane, Rugeley, WS15 2LB	404283	317598	Residential	0	14

Local Plan Name	Site Ref	Application no	Address	Easting	Northing	Property type	Uncertainty	Dwellings
Cannock Chase	C155		145, Cannock Road and land rear of 133 -143 Cannock Road Chadsmoor	398793	311496	Residential	0	6
Cannock Chase	C230		Land off Ashleigh Croft, Cannock	398498	311294	Residential	Near Certain	7
Cannock Chase	C296		The Lamb Public House, John Street, Wimblebury	401606	311381	Residential	Near Certain	9
Cannock Chase	C420		Land at 65 Wimblebury Road (Centenery Close), Heath Hayes, Cannock	401560	310138	Residential	Near Certain	2
Cannock Chase	C476		The Queens Arms Public House, 37 Hill Street, Hednesford	400318	311565	Residential	0	8
Cannock Chase	C481		Newhall, High Green Court, Newhall Street, Cannock	397904	310095	Residential	Near Certain	11
Cannock Chase	C469		A Dunford and Son, Brindley Heath Road, Cannock, WS12 4DR	400406	313324	Residential	More than likely	15
Cannock Chase	C90a	CH/18/2015	Land to the rear of White Lodge, New Penkridge Road, Cannock	397039	310535.5	Residential	Near Certain	8
Cannock Chase	C522		5 Market Place, Cannock, WS11 1BS	398054	310040	Residential	Near Certain	6
Cannock Chase	R192		27 Market Street, Rugeley, WS15 2BS (Western Springs)	404509	318109	Residential	Near Certain	9
Cannock Chase	N67a		272, Hednesford Road, Norton Canes	401992.6	308859.8	Residential	Near Certain	9
Cannock Chase	C540b		Unit F Beecroft Court, Cannock, WS11 1JP	398237	310574	Residential	0	8
Cannock Chase	R127 Pt1		Rugeley Power Station, Rugeley	405601.4	317840.9	Residential	Near Certain	400
Cannock Chase	C530		98 High Green, Cannock, WS11 1BE	397822	310306	Residential	Reasonably foreseeable	6
Cannock Chase	C545		30 Rugeley Road, Hazelslade, Cannock, WS12 0PQ	401973	312850	Residential	0	6
Cannock Chase	C103		Land off St.John's Road, Cannock	397907.4	309533.5	Residential	More than likely	8
Cannock Chase	C299		Former Farm Garage, Hednesford Road, Heath Hayes	400887	310564.5	Residential	Reasonably foreseeable	6
Cannock Chase	C506/CE40		Beecroft Road Car Park, Cannock	398142	310377	Residential	Reasonably foreseeable	40
Cannock Chase	C507		Danilo Road Car Park, Cannock	397801	310136	Residential	Reasonably foreseeable	30

Local Plan Name	Site Ref	Application no	Address	Easting	Northing	Property type	Uncertainty	Dwellings
Cannock Chase	C510		Police Station Car Park, Cannock	397890	310047	Residential	Reasonably foreseeable	35
Cannock Chase	C504/CE73		Land bound by Ringway, Church Street and Market Hall Street, Cannock Town Centre, WS11 1EB.	398140	310254	Residential	More than likely	50
Cannock Chase	C408		Balfour House, 84, High Green, Cannock	397874	310272	Residential	0	9
Cannock Chase	C424		1-3 Walsall Road, Cannock	398166	310032	Residential	0	6
Cannock Chase	C427		249, Hednesford Road, Heath Hayes, Cannock	400865	310577	Residential	0	8
Cannock Chase	R127 Pt2		Rugeley Power Station, Rugeley	405601.4	317840.9	Residential	Near Certain	600
Cannock Chase	C477		Land at 145 Greenheath Road, Hednesford	399475	312982	Residential	More than likely	8
Cannock Chase	C551		St Saviours Church, High Mount Street, West Mill, Cannock, WS12 1AG	399916	312533	Residential	Near Certain	6
Cannock Chase	N33a		Land west of Hednesford Road, Norton Canes (Parcel A)	401890	308864	Residential	Reasonably foreseeable	175
Cannock Chase	C264		Land to the East of John Street/Wimblebury Road, Wimblebury, Cannock	402214	311675.1	Residential	0	1315
Cannock Chase	C116		Land South of the A5190, Lichfield Road, Heath Hayes	401525.8	309625.1	Residential	0	288
Cannock Chase	C432		Gestamp, Wolverhampton Road, Cannock	397177.3	309118.5	Residential	Reasonably foreseeable	180
Cannock Chase	R143/Re15		Rugeley Market Hall/Bus Station, Rugeley	404372	318004	Mixed-Use	Reasonably foreseeable	50
Cannock Chase	R144a		Land at Wellington Drive, Rugeley	404454	317898	Mixed-Use	Reasonably foreseeable	20
Cannock Chase	C508		Backcrofts Car Park, Cannock	398015	310043	Mixed-Use	Reasonably foreseeable	20
Cannock Chase	C505		Park Road Bus Station, Cannock	398142	310377	Mixed-Use	Reasonably foreseeable	35
Cannock Chase	C511b		Land at the corner of Avon Road and Hunter Road, Cannock, WS11 1BT	398106	309936	Residential	More than likely	18
Cannock Chase	C511a		Avon Road/Hallcourt Lane, Cannock	398308	310119	Mixed-Use	Reasonably foreseeable	22

Local Plan Name	Site Ref	Application no	Address	Easting	Northing	Property type	Uncertainty	Dwellings
Dudley	206		Ketley Quarry, Dudley Road	389754	288935	Residential	Near Certain	600
Dudley	151		Leys Road/Moor Street, Brierley Hill	390441	287175	Residential	Reasonably Foreseeable	78
Dudley	149		Land at Plant Street, Mill Street and Bridge Street, Wordsley	389470	286556	Residential	Reasonably Foreseeable	43
Dudley	157		Balds Lane, Lye	393066	284187	Residential	Near Certain	89
Dudley	16.41 (158)		Rufford Road, Stourbridge	391072	283850	Residential	More Than Likely	16
Dudley	173		Land off Engine Lane, Lye (south of railway)	391874	284541	Residential	Reasonably Foreseeable	68
Dudley	50		Land at Bell Street	391733	286958	Residential	Reasonably Foreseeable	161
Dudley	5		Upper High Street / Trident Centre	394293	290215	Residential	Reasonably Foreseeable	60
Dudley	327		Land at Blowers Green Road, Dudley	393970	289786	Residential	Near Certain	90
Dudley	304		Hayes Lane, Stour Vale Road	393018	284716	Residential	Near Certain	59
Dudley	197		DAAP Opportunity site 2 - Cavendish House, Dudley	394635	290314	Residential	Near Certain	225
Dudley	302		Industrial land at Marriott Road and Cradley Road	394404	287474	Residential	Near Certain	41
Dudley	303		Site at Wellington Road and Dock Lane	393754	290147	Residential	Near Certain	130
Dudley	378		St Peter's Road, Netherton	395089	287826	Residential	Near Certain	22
Dudley	367		Marriott Road Industrial Estate, Netherton	395089	287826	Residential	Near Certain	93
Dudley	P18/0209/ PN3O		Trinity Point, New Road, Halesowen	396637	283679	Residential	Near Certain	75
Dudley	69, 66, 62, 56 (PART)		The Embankment/ Daniels Wharf	392226	287223	Residential	Reasonably Foreseeable	300
Dudley	365		Harts Hill	392511	288405	Residential	Reasonably Foreseeable	407
Dudley	366		Waterfront way	392005	287681	Residential	Reasonably Foreseeable	74
Dudley	56 (PART), 57, 68		Canal Walk South (Mill Street)	392100	286815	Residential	Reasonably Foreseeable	273

Local Plan Name	Site Ref	Application no	Address	Easting	Northing	Property type	Uncertainty	Dwellings
Dudley	64, 65		East of Venture Way	392191	287328	Residential	Reasonably Foreseeable	300
Dudley	71, 75		Archill	392709	287677	Residential	Reasonably Foreseeable	760
Dudley			Northmoor industrial Estate	391584	287003	Residential	Reasonably Foreseeable	44
Dudley			Enville Street, Stourbridge	389753	284493	Residential	Reasonably Foreseeable	23
Dudley			North of Birmingham Street, Stourbridge	390454	284438	Residential	Reasonably Foreseeable	70
Dudley			Bradley Road (East)	389809	284731	Residential	Reasonably Foreseeable	46
Dudley			Bradley Road (West)	389581	284731	Residential	Reasonably Foreseeable	24
Dudley			Regent House	394343	290104	Residential	Reasonably Foreseeable	18
Dudley			BT Telephone Exchange	394180	290370	Residential	Reasonably Foreseeable	33
Dudley			Dudley College/Wolverhampton Street	393945	290441	Residential	Reasonably Foreseeable	28
Dudley			Royal Mail Sorting Office	394124	290403	Residential	Reasonably Foreseeable	15
Dudley			Dudley Magistrates Court	394124	290229	Residential	Reasonably Foreseeable	30
Dudley			200a Wolverhampton Street	394286	290310	Residential	Reasonably Foreseeable	21
Dudley			Rear of 52-53 High Street	390202	284410	Residential	Reasonably Foreseeable	9
Dudley			Rye Market Car Park	390115	284211	Residential	Reasonably Foreseeable	50
Dudley			36-42 Market Street	390019	284125	Residential	Reasonably Foreseeable	10
Dudley			Will Thorne House	396724	283546	Residential	Reasonably Foreseeable	20
Dudley			Halesowen Police Station	396787	283201	Residential	Reasonably Foreseeable	30
East Staffs District	2015/03	P/2012/01467	Branston Locks Lawns Farm Branston Road Tatenhill Staffordshire DE13 9SB	421643	322367	Residential	Near Certain	2500

Local Plan Name	Site Ref	Application no	Address	Easting	Northing	Property type	Uncertainty	Dwellings
East Staffs District	2016/97	P/2018/00384	Land to the south of Forest School Street Rolleston on Dove Staffordshire DE13 9AZ	424624	327486	Residential	Near Certain	100
East Staffs District	2015/68	P/2018/00697	Land South of Lichfield Road Branston DE14 3EQ (phase 3 & 4)	422008	320344	Residential	Near Certain	392
East Staffs District	2015/03	P/2018/00233	(PH2) Lawns Farm Branston Road Tatenhill DE13 9SB	421643	322367	Residential	Near Certain	201
East Staffs District	2018/67	P/2015/01497	Hazelwalls Farm Timber Lane Uttoxeter ST14 8DQ	408479	332413	Residential	Near Certain	429
East Staffs District	2015/03	P/2019/00756	(PH3) Lawnswood (Branston Locks) Branston Road Tatenhill DE13 9SB	421697	322322	Residential	Near Certain	244
East Staffs District	No:	P/2020/00184	Upper Outwoods Farm (Ph1) Beamhill Road Burton Upon Trent DE13 9QW	422462	325529	Residential	Near Certain	322
East Staffs District	No:	P/2020/00591	Upper Outwoods Farm (Ph1b) Beamhill Road Burton Upon Trent Staffordshire DE13 9QW	422408	325524	Residential	Near Certain	70
East Staffs District	2015/03	P/2020/00857	(PH4) Lawns Farm Shobnall Road Shobnall Burton-upon-Trent	422693	323587	Residential	Near Certain	190
East Staffs District	No:	P/2021/00433	Upper Outwoods Farm (Ph3b, 3c & 4a) Beamhill Road Burton upon Trent Staffordshire DE13 9QW	422408	325524	Residential	Near Certain	270
East Staffs District	No:	P/2021/01053	Upper Outwoods Farm (ph3a, 4b & 5a) Beamhill Road Burton Upon Trent DE13 9QW	422408	325524	Residential	Near Certain	288
East Staffs District	No:	P/2013/00686	rear of 38-54 Bridge Street Uttoxeter Staffordshire ST14 8AP	409382	333368	Residential	More than likely	14
East Staffs District	2016/67	P/2016/00778	126 New Street Burton Upon Trent Staffordshire DE14 3QY	424702	322742	Residential	Near Certain	7
East Staffs District	2016/101	P/2016/00083	The Maltings Uttoxeter Staffordshire ST14 7LN	409197	333603	Residential	Reasonably foreseeable	9
East Staffs District	2017/18	P/2017/00247	Sovereign House Bond Street Burton Upon Trent Staffordshire DE14 3RZ	424886	322410	Residential	More than likely	8
East Staffs District	2017/21	P/2016/01717	70 Guild Street Burton upon Trent DE14 1NB	424851	323169	Residential	Near Certain	7
East Staffs District	2017/49	P/2017/00244	The Maltings (No 3) Wetmore Road Burton Upon Trent DE14 1SE	425209	323634	Residential	Near Certain	88

Local Plan Name	Site Ref	Application no	Address	Easting	Northing	Property type	Uncertainty	Dwellings
East Staffs District	No:	P/2018/00392	The Old Sunday School (front & middle) 3 George Street Burton upon Trent DE14 1DP	424771	323129	Residential	Near Certain	6
East Staffs District	2016/83	P/2018/01346	Proposed Residential Development Ashbourne Road Rocester Staffordshire	410937	339633	Residential	Near Certain	53
East Staffs District	2018/85	P/2017/00555	Land off Westlands Road Uttoxeter Staffordshire	408398	332602	Residential	Near Certain	18
East Staffs District	2017/72	P/2019/00037	Proposed dwellings, site of Hillcroft, Elford Cottage and Kelsterton Holly Road / Heath Cross Uttoxeter Staffordshire	408427	334022	Residential	Near Certain	9
East Staffs District	2019/20	P/2019/00396	Britannia House Station Street Burton Upon Trent Staffordshire DE14 1AX	424756	322995	Residential	Near Certain	7
East Staffs District	No:	P/2019/00266	36 Derby Road Burton Upon Trent Staffordshire DE14 1RU	424838	324333	Residential	Near Certain	6
East Staffs District	2019/66	P/2019/00543	Brookhouse Farm Dagdale lane Dagdale Staffordshire	405167	334136	Residential	More than likely	6
East Staffs District	2019/67	P/2019/00666	Suite 8 Anson Court Horninglow Street Burton Upon Trent DE14 1NG	425251	323354	Residential	More than likely	6
East Staffs District	2016/84	P/2018/01042	Howards Transport Clays Lane Branston DE14 3HS	422548	321279	Residential	Near Certain	86
East Staffs District	2020/01	P/2019/01465	Fivelands Allotments Stanton Road Stapenhill Burton upon Trent Staffordshire	425619	321605	Residential	Near Certain	64
East Staffs District	2020/34	P/2020/00255	Land at the Brookhouse Hotel Brookside Rolleston on Dove Staffordshire DE13 9AA	423899	327943	Residential	Near Certain	10
East Staffs District	2020/35	P/2020/00376	65 - 68 High Street Burton Upon Trent Staffordshire	425182	323123	Residential	Near Certain	13
East Staffs District	2020/57	P/2018/01291	Land off Aviation Lane Burton upon Trent Staffordshire	421349	323596	Residential	Near Certain	128
East Staffs District	2020/65	P/2020/01325	Telephone Exchange Fleet Street Burton upon Trent Staffordshire DE14 3RS	424882	322468	Residential	Near Certain	20
East Staffs District	2016/102	P/2020/00401	Plough Maltings Rear of 143 Horninglow Street Burton on Trent DE14 1PA	424941	323447	Residential	Near Certain	32

Local Plan Name	Site Ref	Application no	Address	Easting	Northing	Property type	Uncertainty	Dwellings
East Staffs District	2021/10	P/2020/01492	Formerly the Burton Museum and Art Gallery 160 Station Street Burton Upon Trent Staffordshire	424741	323045	Residential	Near Certain	13
East Staffs District	2020/65	P/2021/00310	Telephone Exchange Fleet Street Burton Upon Trent Staffordshire DE14 3RS	424882	322468	Residential	Near Certain	16
East Staffs District	2016/19	P/2019/00297	Land off Forest Road (left of site) Shobnall Burton upon Trent DE14 2BD	422254	323718	Residential	Near Certain	40
East Staffs District	2016/19	P/2019/00320	Land off Forest Road (right of site) Shobnall Burton upon Trent DE14 2BD	422366	323932	Residential	Near Certain	64
East Staffs District	2015/03	P/2019/00258	Land South of Lichfield Road Branston DE14 3EQ (PH5 - Branston Leas)	421321	319741	Residential	Near Certain	120
East Staffs District	2017/49	P/2020/00679	Nos 1 & 2 The Maltings Wetmore Road Burton Upon Trent Staffordshire DE14 1SF	425208	323700	Residential	Near Certain	143
East Staffs District	New	P/2021/01110	Riversholme High Street Rocester ST14 5JU	410810	339269	Residential	More than likely	7
East Staffs District	New	P/2021/01163	The New Inn Horninglow Road North Burton Upon Trent Staffordshire	424261	324994	Residential	Near Certain	11
East Staffs District	No:	P/2020/00614	Land off Craythorne Road Rolleston on Dove DE13 9EF	424015	327421	Residential	Near Certain	23
East Staffs District		P/2012/00636	Housing Strategic Site_SP4, SP11 & SP12. Adopted Local Plan 2012-2031 (College Fields)	424626.2	327482.2	Residential	0	100
East Staffs District		P/2013/00406	Land North Of Guinevere Avenue Stretton Staffordshire DE13 0FZ. Housing Strategic Site_SP4, SP11 & SP12. Adopted Local Plan 2012-2031 (Guinevere)	425297	326875	Residential	More than likely	100
East Staffs District		P/2017/01589	Housing Strategic Site_SP4, SP11 & SP12. Adopted Local Plan 2012-2031 (Bargates)	425348	323216.2	Residential	Near Certain	100
East Staffs District		P/2017/01307	Housing Strategic Site_SP4, SP11 & SP12. Adopted Local Plan 2012-2031 (JCB)	409145.2	333181.6	Residential	Near Certain	257

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East Staffs District		P/2012/00201/JI/PO	Housing Strategic Site_SP4, SP11 & SP12. Adopted Local Plan 2012-2031 (Churnet Farm, Rocester)	410672.2	339130.3	Residential	More than likely	90
East Staffs District	46055	P/2016/00083	The Maltings Uttoxeter Staffordshire ST14 7LN	409197	333603	Mixed-Use	0	9
East Staffs District	46092	P/2020/00401	Plough Maltings Rear of 143 Horninglow Street Burton on Trent DE14 1PA	425157	323310	Mixed-Use	Near Certain	32
East Staffs District		P/2013/00432	Major Sustainable Urban Extension_SP7. Adopted Local Plan 2012-2031 (LSOB)	421972.2	320552	Mixed-Use	0	660
East Staffs District		P/2013/00882	Major Sustainable Urban Extension_SP7. Adopted Local Plan 2012-2031 (West of Uttoxeter)	407151	334594.6	Mixed-Use	Near Certain	700
East Staffs District		P/2013/00429	Major Sustainable Urban Extension_SP7. Adopted Local Plan 2012-2031 (Beamhill)	422772.2	325481.7	Mixed-Use	0	950
East Staffs District		P/2015/00202	Smaller Sustainable Urban Extension_SP7. Adopted Local Plan 2012-2031 (Harehedge)	423647.4	326293.2	Mixed-Use	0	500
East Staffs District		P/2019/00297 & P/2019/00320	Other Major Site - Forest Road Burton	422373.3	323932.7	Mixed-Use	Near Certain	104
Lichfield	4		Kings Bromley Road, The New Lodge	416555.1	314973.5	Residential	Reasonably foreseeable	6
Lichfield	7		Lynn Lane, Shenstone	410541.7	304583.5	Residential	Reasonably foreseeable	50
Lichfield	12		Bridge Farm, Fradley	415521.5	312970	Residential	0	80
Lichfield	23		Land at Chapel Lane & Blacksmith Lane	416046.2	308493.1	Residential	Reasonably foreseeable	10
Lichfield	31		Land south of Cannock Road	404285.9	309348.5	Residential	0	17
Lichfield	35		Maple Close	405031.5	309071.2	Residential	Reasonably foreseeable	32
Lichfield	37		Cottage of Content PH	404900.7	308299.1	Residential	Reasonably foreseeable	10
Lichfield	38		Land at Burntwood Buisness Park	404167.5	308828.2	Residential	0	150
Lichfield	40		Land at the Rosaries	412435.9	309724.3	Residential	Reasonably foreseeable	9

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Lichfield	42		Land off Burton Road	413749.7	310106.9	Residential	Reasonably foreseeable	38
Lichfield	44		Land at St Johns Hospital	411677.8	309079.3	Residential	Reasonably foreseeable	36
Lichfield	54		Cherry Orchard, 41	412364.5	309216.2	Residential	0	10
Lichfield	55		Cherry Orchard, land off	411913.3	308984.3	Residential	Reasonably foreseeable	9
Lichfield	56		Trent Valley Buffer Depot	413465.9	310174.6	Residential	Reasonably foreseeable	50
Lichfield	57		Former St Michaels Playing fields	412305	309502.6	Residential	Reasonably foreseeable	9
Lichfield	59		Hawthorn house, burton old Road	412647.1	309543	Residential	Reasonably foreseeable	19
Lichfield	64		Scotch orchard, former day nursery	412906.4	310162.6	Residential	Reasonably foreseeable	27
Lichfield	89		Chorley Road, Boney Hay Concrete	404974.4	310568.5	Residential	Reasonably foreseeable	7
Lichfield	66		Land off Limburg Abenue	410495.2	308560.4	Residential	0	194
Lichfield	72		East of Streethay, Burton Road	414323.2	310466.5	Residential	0	20
Lichfield	95		Fish Pits Farm, Harlaston	421709.5	310760.4	Residential	0	24
Lichfield			Cricket Lane SDA	412705.3	307964.7	Residential	Near Certain	450
Lichfield	381	21/00064/FUL & 21/00783/FUL	Coppy Nook Lane, Overton Farm	406407.6	307956.7	Residential	Near Certain	9
Lichfield	382	21/00107/FUL	Chesterfield Road, land adjacent 106 and 112	411333.3	308417.6	Residential	Near Certain	7
Lichfield	361	19/00275/FUL	Lynn Lane, Lynn Lane Farm	409482.6	304776.1	Residential	Near Certain	6
Lichfield	65	18/01797/OUTM & 20/01648/COU	Rotten Row, Lichfield Health and Fitness	412451.5	309467.9	Residential	Reasonably foreseeable	14
Lichfield	363	18/01498/FUL	Claypit Lane, land at Deanslade Farm	411006.2	307871.8	Residential	Near Certain	7
Lichfield	293	Call for Sites LPA L2	Streethay SDA, Land to the north west	413440.2	310828.2	Residential	Near Certain	200
Lichfield	365	18/01484/OUTM	Tamworth Road, land south of	413090.7	308307.6	Residential	Near Certain	28

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Lichfield	379	-	Rectory Lane, 19	407950.7	315834.7	Residential	Near Certain	6
Lichfield	380	20/00417/PND	Birmingham Road, Shire House	411474.7	308465	Residential	Reasonably foreseeable	18
Lichfield	384	19/01707/FUL	The Beck, Elford Sports and Social Club	418961	310474.5	Residential	Near Certain	7
Lichfield	148	20/01031/OUTM	Hay End Lane, Fradley	414944.8	313559.9	Residential	Near Certain	184
Lichfield	149	18/01693/FUL	Common Lane, West of, Fradley	415431.3	313293.3	Residential	Near Certain	8
Lichfield	242	19/00661/FUL	High Street, land rear 161-167, Chasetown	404510.6	308736.9	Residential	Near Certain	6
Lichfield	140	remainder of Fradley Park site	Land off Gorse Lane, Fradley Park	414615.1	313480.4	Residential	Near Certain	250
Lichfield	249	14/00057/OUTMEI Appeal	Land off Watery Lane	412687.9	312024	Residential	Near Certain	750
Lichfield	292	19/00753OUTMEI	Rugeley Power Station	406385	317259.7	Residential	Near Certain	2300
Lichfield	6	LPA w2 17/01160/FUL & 17/01161/LBC	Whittington Youth Centre	416060.9	308311.8	Residential	Near Certain	8
Lichfield	18	18/00961/FULM	Anson Road., land at, Alrewas	417020.4	314704.6	Residential	Near Certain	23
Lichfield	22	LPA A2	Essington House Farm, Alrewas	417462.7	315303.5	Residential	Near Certain	121
Lichfield	29	17/01379/OUTM & 19/00662/REMM	The Shrubbery, Elford	419122.4	310344.9	Residential	Near Certain	25
Lichfield	42	15/00485/FULM & 18/00065/FULM & 18/00066/LBC	Packington Hall	416361.7	306327	Residential	Near Certain	28
Lichfield	43	19/00318/FULM	The Works, Quonians Lane	411783.8	309678.6	Residential	Near Certain	74

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Lichfield	47	20/01742/FULM	The Windmill (PH), Grange Lane	410930.8	310406.4	Residential	Near Certain	12
Lichfield	49	17/00307/REM & 19/01317/FUL	The Greyhound (PH), Upper St John Street	411961.6	308867.8	Residential	Near Certain	8
Lichfield	69	15/01198/OUTM LPA AH1	Lichfield Road, East of, Armitage with Handsacre	409523.8	315515.4	Residential	Near Certain	199
Lichfield	80	14/00516/OUTMEI & 20/00908/REMM	Arkall Farm, Tamworth	421892.1	306257.7	Residential	Near Certain	1000
Lichfield	85	12/00182/OUTMEI & 19/00478/REMM	Shortbutts Lane, South of, Lichfiled	411842.6	307797.2	Residential	Near Certain	450
Lichfield	89	18/00076/FULM & 18/00077/LBC	Tolsons Mill, Lichfield Street, Fazeley	420361.9	301890.1	Residential	Near Certain	102
Lichfield	91	17/00139/OUTM & 19/00369/REMM	Mount Road, Land at, Burntwood	405769	308610.6	Residential	Near Certain	95
Lichfield	97	17/01191/OUFM	Dean Slade Farm, Land at, Lichfield	411145.5	307634.1	Residential	Near Certain	475
Lichfield	271	14/00218/FULM	Footherley Lane, Footherley Hall	409954.7	303644.3	Residential	Near Certain	26
Lichfield	377	7 gross - 21/00613/FUL	Main Street, 122	416995.5	315015.6	Residential	Near Certain	6
Lichfield	116	15/00568/FULM LPA B2	Queen Street, 82-84	404938.3	308329.4	Residential	Near Certain	14
Lichfield	118	20/01765/FUL	Lamb Farm, London Road	414538.3	299605	Residential	Near Certain	8
Lichfield	138	19/00115/FULM - C2 use	Guardian House, Birmingham Road, Lichfield	412095.7	309485.3	Residential	Near Certain	27
Lichfield	252	16/0001/REMM,	Fradley SDA, Fradley Park	414971.8	313153.9	Residential	Near Certain	590

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		18/00481/REMM						
Lichfield	255	17/00060/OUTM & 19/00593/REMM	Eastern Avenue, Norgren Site	412768.1	310608.5	Residential	Near Certain	70
Lichfield	46	13/01223/COU	Beacon Street, Angel Croft Hotel	411355.6	309703.1	Residential	Near Certain	9
Lichfield	327	18/00439/COU	Birmingham Road., 263, Shenstone Wood End	411126	301109.6	Residential	Near Certain	7
Lichfield	329	18/0159/FULM & 18/00501/PND	Station Road, Bridge House, Lichfield	412097	309338.7	Residential	Near Certain	24
Lichfield	135	19/01251/FULM	Beaconsfield House, Sandford Street	411518.5	309432	Residential	Near Certain	28
Sandwell	187		Extension to Caravan Site	395221	294667	Residential	More than likely	10
Sandwell	5		Brown Lion Street	395179	293420	Residential	More than likely	20
Sandwell	12		Land adjacent To Asda Wolverhampton Road, Oldbury	398936	288088	Residential	More than likely	62
Sandwell	21		88/90 Dudley Rd West	396736	290750	Residential	Reasonably foreseeable	12
Sandwell	24		Mill Street, Great Bridge	397634	292265	Residential	More than likely	30
Sandwell	25		Swan Lane	399292	292288	Residential	More than likely	147
Sandwell	26		The Boat Gauging House & Adjoining Land, Factory R	395124.6	292638.9	Residential	More than likely	50
Sandwell	27		Alma Street, Wednesbury	399750	295120	Residential	Reasonably foreseeable	19
Sandwell	28		The Phoenix Collegiate, Friar Park Road, Wednesbur	400716	295250	Residential	More than likely	84
Sandwell	29		Star and Garter, 252 Duchess Parade, West Bromwich	400478	291178	Residential	More than likely	60
Sandwell	31		Tipton Conservative and Unionist Club, 64 Union St	395609	292259	Residential	More than likely	14
Sandwell	32		Sandwell District & General Hospital,	400890	292079	Residential	Reasonably foreseeable	121

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Sandwell	33		Fmr Springfield & Brickhouse Neighbourhood Office	396311	287992	Residential	More than likely	26
Sandwell	34		John Dando House, 235 hamstead road, great barr bi	404119	293022	Residential	Near Certain	26
Sandwell	35		Intersection House, 110 Birmingham Road, West Brom	401635	290403	Residential	Near Certain	136
Sandwell	36		Vacant Land Off Friardale Close, School Road, Carr	400786	295004	Residential	More than likely	30
Sandwell	38		173 Rolfe Street, Smethwick	402444	288779	Residential	More than likely	12
Sandwell	40		Metro House 410-416 High Street West Bromwich	399941	291632	Residential	More than likely	34
Sandwell	43		Land Adjacent Compton Grange, Whiteall Road, St An	394241	285951	Residential	More than likely	15
Sandwell	44		Crosswells Road, Langley	399883	288063	Residential	More than likely	12
Sandwell	45		164 Birmingham Road, West Bromwich	401484	290413	Residential	More than likely	16
Sandwell	46		5 Lombard Street West Bromwich	400373	291405	Residential	More than likely	44
Sandwell	47		Silverthorne Lane/ Forge Lane Cradley Heath	393760	285875	Residential	Reasonably foreseeable	74
Sandwell	48		Langley Maltings, Western Road, Langly	399613	288297	Residential	Reasonably foreseeable	95
Sandwell	49		Macarthur Road Industrial Estate Cradley Heath	394226	285515	Residential	Reasonably foreseeable	10
Sandwell	53		Cradley Heath Factory Centre, Woods Lane, Cradley	394003	285602	Residential	Reasonably foreseeable	160
Sandwell	54		Land adj to Droicon Estate, Portway Road, Rowley R	397033	288137	Residential	Reasonably foreseeable	28
Sandwell	55		STW/SMBC Land	400725	295372	Residential	More than likely	630
Sandwell	57		Land at Horseley Heath, Alexandra Road, and Lower	396858	292389	Residential	Reasonably foreseeable	60
Sandwell	58		Elbow Street, Old Hill	395619	286472	Residential	Reasonably foreseeable	25
Sandwell	59		Dudley Road East	397993	290278	Residential	Reasonably foreseeable	106
Sandwell	60		Tatbank Road Oldbury	399890	288564	Residential	Reasonably foreseeable	40

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Sandwell	62		28-64 High Street, West Bromwich	401044	290609	Residential	Reasonably foreseeable	58
Sandwell	64		Cokeland Place / Graingers Lane, Cradley Heath	394610	285790	Residential	Reasonably foreseeable	13
Sandwell	65		Bradleys Lane / High Street, Tipton	395322	293779	Residential	Reasonably foreseeable	230
Sandwell	66		Lower City Road,Oldbury	397789	290173	Residential	Reasonably foreseeable	63
Sandwell	68		Site surrounding former Post office and Telephone	397191	292252	Residential	Reasonably foreseeable	42
Sandwell	69		Friar Street, Wednesbury	399905	295216	Residential	Reasonably foreseeable	38
Sandwell	70		Used Car Sales site on corner of Lower Church Lane	396854	291949	Residential	Reasonably foreseeable	20
Sandwell	71		Grafton Lodge, Grafton Road, Oldbury	398812	286756	Residential	Reasonably foreseeable	19
Sandwell	75		Land to east of Black Lake, west Bromwich	399554	292520.5	Residential	Reasonably foreseeable	86
Sandwell	76		Summerton Road, Oldbury	398051	290033	Residential	Reasonably foreseeable	32
Sandwell	77		Bank Street (West), Hateley Heath	400504	292742	Residential	Reasonably foreseeable	43
Sandwell	78		Wellington Road, Tipton	396453	291923	Residential	Reasonably foreseeable	31
Sandwell	79		Brandhall Golf Course	399228	286372	Residential	More than likely	190
Sandwell	85		Rattlechain Site Land to the north of Temple Way,	397529	291218	Residential	Reasonably foreseeable	518
Sandwell	86		Land between Addington Way and River Tame, Temple	397814	291077	Residential	Reasonably foreseeable	32
Sandwell	87		Edwin Richards Quarry, Portway Road, Rowley Regis	396849	288360	Residential	More than likely	526
Sandwell	90		Brades Road, Oldbury	398085	290112	Residential	Reasonably foreseeable	54
Sandwell	92		Land to West of Thomas Street,	400825	290701	Residential	Reasonably foreseeable	30
Sandwell	94		Langley Swimming Centre, Vicarage Road, Oldbury	400012	287927	Residential	Reasonably foreseeable	20
Sandwell	95		North Smethwick Canalside	402401	288853	Residential	Reasonably foreseeable	400

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Sandwell	97		Forge Put, junction Franchise Street and Beebee Ro	398714	296596	Residential	Reasonably foreseeable	10
Sandwell	166		Land of Tanhouse Avenue, Great Barr	403637	293031	Residential	Reasonably foreseeable	46
Sandwell	167		Wyndmill crescent, West Bromwich	401779	294571	Residential	Reasonably foreseeable	11
Sandwell	168		Site Of Nos 118-152	398079	291980	Residential	Near Certain	20
Sandwell	169		Site Of Former Stone Cross Neighbourhood Office	401261	293963	Residential	More than likely	14
Sandwell	170		Groveland, Oldbury	396739.2	291029.6	Residential	Reasonably foreseeable	58
Sandwell	172		St Johns St, Carters Green	399910	291824	Residential	Reasonably foreseeable	33
Sandwell	174		Tentec, Guns Lane	399884	291658	Residential	More than likely	129
Sandwell	175		Providence place/ Bratt Street	400299	291621	Residential	Reasonably foreseeable	70
Sandwell	179		Overend Street, West Bromwich	400986	290859	Residential	Reasonably foreseeable	70
Sandwell	180		George street living	400801	290650	Residential	Reasonably foreseeable	327
Sandwell	181		Grove Lane/ Cranford Street/ London Street	403407	288320	Residential	More than likely	108
Sandwell	182		Cranford Street / Heath Street / Canal	403764	288256	Residential	Reasonably foreseeable	115
Sandwell	183		Cape Arm Cranford Street	403701	288181	Residential	Reasonably foreseeable	170
Sandwell	184		Moilliett Street Park - Grove Lane masterplan	403664	287872	Residential	Reasonably foreseeable	31
Sandwell	185		Grove Street / MMUH / School - Grove Lane MP	403664	287872	Residential	Reasonably foreseeable	85
Sandwell	186		Abberley Street Grove Lane Master Plan	403664	287872	Residential	Reasonably foreseeable	140
Sandwell	188		Land Between No.32 And George Betts School	400510	289326	Residential	Reasonably foreseeable	11
Sandwell	189		Hawes Lane	396850	287460	Residential	Reasonably foreseeable	15
Sandwell	190		Beever Road	397587	293183	Residential	More than likely	18

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Sandwell	191		Former Sunlight Laundry	402053	287312	Residential	Near Certain	33
Sandwell	200		Site of 30-144 Mounts Road, Wednesbury	398944	294674	Residential	More than likely	22
Sandwell	201		Reservoir Road	397503	287500	Residential	Near Certain	27
Sandwell	202		Cradley Road / Bannister Street	394700	286530	Residential	More than likely	12
Sandwell	203		Bailey Street, Rear of 114-128 Claypit Lane	399244	291590	Residential	Reasonably foreseeable	8
Sandwell	204		Great Bridge - Car Park	397988	292420	Residential	More than likely	48
Sandwell	205		Land At The Junction Of Sedgley Road West	395098	292315	Residential	More than likely	6
Sandwell	206		Land at Mill Lane	399507	288041	Residential	Near Certain	18
Sandwell	207		116/117 Graingers Lane	394385	285823	Residential	More than likely	6
Sandwell	208		Haden Cross Drive	396177	285437	Residential	Near Certain	51
Sandwell	209		Site Of 18A Church Vale	401026	292349	Residential	More than likely	6
Sandwell	210		Lower City Road / Dudley Rd East,	397809	290374	Residential	Near Certain	14
Sandwell	211		Cradley Heath Factory Centre	394003	285602	Residential	Near Certain	34
Sandwell	212		Former Fisheries Site	398349	290437	Residential	Reasonably foreseeable	12
Sandwell	213		The Mill	401752	294249	Residential	More than likely	32
Sandwell	214		Site Of 180-190	396242	288085	Residential	More than likely	8
Sandwell	215		Johal Supersave	399680	294985	Residential	Near Certain	8
Sandwell	216		Land to the rear of 13 to 27	400862	292902	Residential	Near Certain	9
Sandwell	217		Former Resource Centre	401860	288583	Residential	Near Certain	20
Sandwell	218		Site Of Former Royal Oak Public House	398134	291943	Residential	Near Certain	12
Sandwell	219		Former Simpson Street Day Centre	399227	289489	Residential	More than likely	10
Sandwell	220		51 Beeches Road	401270	290871	Residential	More than likely	8

Local Plan Name	Site Ref	Application no	Address	Easting	Northing	Property type	Uncertainty	Dwellings
Sandwell	221		Site Of Former Bridge Pub	399472	288179	Residential	Near Certain	8
Sandwell	222		117 Bloomfield Road	395195	293469	Residential	More than likely	9
Sandwell	223		Car Park Junction Piddock Road/Crocketts Lane Smethwick	402395	288441	Residential	Near Certain	9
Sandwell	224		60 Sandon Road	402431	286376	Residential	Near Certain	6
Sandwell	225		Site Of Former Cradley Print,	394154	285779	Residential	Near Certain	12
Sandwell	226		374 High Street, West Bromwich	400096	291529	Residential	Near Certain	97
Sandwell	227		Regis Hall And Restaurant	395363	286663	Residential	More than likely	9
Sandwell	228		Former Regis Lodge	397458	286589	Residential	Near Certain	42
Sandwell	229		Land Adjacent 20	398894	294948	Residential	Near Certain	7
Sandwell	230		Tipton Labour Club, 21 Victoria Road, Tipton	396002	292164	Residential	More than likely	9
Sandwell	231		Former Shaftesbury House	400719	292488	Residential	More than likely	47
Sandwell	232		Brook Road Open Space, Wolverhampton Road, Oldbury	399236	286862	Residential	More than likely	13
Sandwell	233		The Fomer New Talbot PH	399447.5	292856.6	Residential	More than likely	9
Sandwell	234		Coppice Street, West Bromwich	399295.2	291744.7	Residential	Reasonably foreseeable	7
Sandwell	235		Cricket Ground, Garratts Lane	395975	286651	Residential	Reasonably foreseeable	20
Sandwell	236		Land at Oxford Street / Oxford Terrace Wednesbury	399739	294986	Residential	Reasonably foreseeable	9
Sandwell	237		Hawthorns House	402279	289530	Residential	More than likely	128
Sandwell	238		618 - 620 Bearwood Road	402194	286196	Residential	More than likely	7
Sandwell	239		24 - 28 Cape Hill	401359	287820	Residential	Near Certain	6
Sandwell	240		Pheasant Inn	400694	286275	Residential	More than likely	14
Sandwell	241		Land Fronting Archer Way (Rear Of 12 To 18)	397622	286394.1	Residential	More than likely	6
Sandwell	242		and Adjacent	400682	285556	Residential	Near Certain	6

Local Plan Name	Site Ref	Application no	Address	Easting	Northing	Property type	Uncertainty	Dwellings
Sandwell	243		Land At The Junction Of Meredith Street	394816	286317	Residential	Near Certain	15
Sandwell	244		Land Adj Alexandra Road And Spring Street,	396212	292428	Residential	More than likely	10
Sandwell	245		42 Corbett Street	402698	287910	Residential	More than likely	6
Sandwell	246		Salisbury House ,	400553	292361	Residential	More than likely	7
Sandwell	247		Land At Corner Of Suffrage Street,	402684	287994	Residential	Near Certain	10
Sandwell	248		8A, 9 & 11 Market Place	397697	292539	Residential	More than likely	7
Sandwell	249		2 Victoria Street	400379	291271	Residential	Near Certain	8
Sandwell	250		Coniston, Derwent, Rydal, Ullswater & Windermere Houses	397588	288275	Residential	Near Certain	20
Sandwell	251		Harvest Road Day Centre	396295	287404	Residential	More than likely	8
Sandwell	253		9 - 17 Victoria Street	400310	291229	Residential	Near Certain	45
Sandwell	254		Land Adjacent	394708	291858	Residential	More than likely	9
Sandwell	255		34 Newbury Lane Oldbury	398141	288962	Residential	More than likely	9
Sandwell	256		Land Adjacent 83	396536	291523	Residential	More than likely	8
Sandwell	257		Brittania School, Rowley Regis	397539	286894	Residential	Near Certain	10
Sandwell	258		Former Ryder House, Whitgrave St, West Bromwich	398313	291416	Residential	More than likely	6
Sandwell	259		166 Walsall Road	401175	294130	Residential	More than likely	6
Sandwell	260		301 High Street	400356	291359	Residential	More than likely	9
Sandwell	261		St Vincent Cresent, Harvills	398702	293008	Residential	More than likely	8
Sandwell	262		Highams Close, Rowley	396559	287132	Residential	More than likely	6
Sandwell	263		Leabrook Road/Willingsworth Road, Tipton	397710	294292	Residential	More than likely	6
Sandwell	264		42 Cape Hill	402835	287626	Residential	More than likely	8

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Sandwell	265		26 - 28 Carters Green	399800	291771	Residential	Near Certain	12
Sandwell	266		Land Adjacent 39 And 40	397740	292902	Residential	More than likely	6
Sandwell	267		13 And 13A Wellington Road	402172	287421	Residential	More than likely	7
Sandwell	268		217 Halesowen Road	395535	286378	Residential	More than likely	7
Sandwell	269		Unit 8 - 10	399103	290121	Residential	More than likely	13
Sandwell	270		Woden House	398802	294929	Residential	More than likely	14
Sandwell	171		Evans Halshaw car showroom	399818	291896	Mixed-Use	Reasonably foreseeable	140
Sandwell	173		Army Reserve, Carters Green	399754	291745	Mixed-Use	Reasonably foreseeable	63
Sandwell	176		Cultural Quarter, West Brom	400229	291354	Mixed-Use	Reasonably foreseeable	52
Sandwell	177		Queens Square Living	400708	291091	Mixed-Use	Reasonably foreseeable	396
Sandwell	178		West Bromwich Central	400605	290973	Mixed-Use	Reasonably foreseeable	343
Sandwell	199		Lion Farm	398120	288506	Mixed-Use	Reasonably foreseeable	200
South Staffs District		19/00248/FUL	LAND AT SHOP LANE, OAKEN	385749	302614	Residential	Near Certain	10
South Staffs District		21/00977/REM	LAND ON NORTH WEST SIDE OF STAFFORD ROAD, PENKRIDGE	392367	314806	Residential	Near Certain	24
South Staffs District		19/00988/REM	(SAD 239) LAND WEST OF WROTTESLEY PARK ROAD, PERTON	385542	299278	Residential	Near Certain	220
South Staffs District		16/01023/REM	HAZELBROOK INDUSTRIAL ESTATE HAZEL LANE, GREAT WYRLEY	399951	306737	Residential	Near Certain	17
South Staffs District		20/00621/OUT	(SAD 272) LAND SOUTH OF WHITE HILL, KINVER	383711	284139	Residential	Near Certain	40

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South Staffs District		21/00660/FUL	Bridge Farm, Long Street, Wheaton Aston	385507	312875	Residential	Near Certain	21
South Staffs District		21/00631/FUL	Land at Landywood Lane, Chelsyn Hay	398524	306556	Residential	Near Certain	50
South Staffs District		22/00004/FUL	Former Great Wyrley Community Support Unit, 156 Walsall Road, Great Wyrley	399244	307488	Residential	More than likely	63
South Staffs District		18/00710/FUL	(SAD 443) LAND SOUTH OF PENDEFORD MILL LANE, BILBROOK	388323	303137	Residential	Near Certain	63
South Staffs District		18/00710/FUL	(SAD 054) LAND AT ENGLETON LANE, BREWOOD	388835	309426	Residential	Near Certain	25
South Staffs District		21/00068/REM	(SAD 406) LAND AT KEEPERS LANE, CODSALL	387176	302530	Residential	Near Certain	56
South Staffs District		19/00407/FUL	(SAD 119) SAREDON ROAD, CHESLYN HAY	397150	307289	Residential	Near Certain	60
South Staffs District		18/00450/REM	(SAD 153) LAND OFF (SE) HOBNOCK ROAD, ESSINGTON	396467	303657	Residential	Near Certain	102
South Staffs District		19/00919/FUL	(SAD 168) BRINSFORD LODGE, EAST ROAD, FEATHERSTONE	393283	305127	Residential	Near Certain	74
South Staffs District		19/00444/REM	(SAD 270) LAND EAST OF HYDE LANE, KINVER	384377	284269	Residential	Near Certain	13
South Staffs District		18/00392/REM	LAND WEST OF IVETSEY ROAD, WHEATON ASTON	384820	312430	Residential	Near Certain	19
South Staffs District		19/00862/REM	LAND NORTH OF PENKRIDGE, STAFFORD ROAD, PENKRIDGE	392358	314972	Residential	Near Certain	142
South Staffs District		19/00043/FUL	THE PLOUGH INN, SCHOOL ROAD, TRYSULL	385119	293993	Residential	Near Certain	9

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South Staffs District		18/00831/FUL	(SAD 281A) LAND OFF GIGGETTY LANE, WOMBOURNE	386459	292869	Residential	Near Certain	19
South Staffs District		19/00212/REM	(SAD 302) LAND AT BEGGARS BUSH LANE, WOMBOURNE	387821	292401	Residential	Near Certain	11
South Staffs District		20/01045/FUL	HIMLEY COUNTRY HOTEL	388018	291314	Residential	Near Certain	9
South Staffs District		21/00435/FUL	WHEATON ASTON OLD HALL	383794	310759	Residential	Near Certain	9
South Staffs District		19/00989/FUL	PRIME OAK	384530	290234	Residential	Near Certain	9
South Staffs District		19/00814/FUL	WAGGON AND HORSES PUBLIC HOUSE	386166	292143	Residential	Near Certain	9
South Staffs District		19/00993/FUL	LAND OFF	395361	317891	Residential	Near Certain	8
South Staffs District		19/00760FUL	THE BUNGALOW	397199	313058	Residential	Near Certain	8
South Staffs District		21/00458/FUL	MARY BOND COURT	386450	292920	Residential	Near Certain	8
South Staffs District		11/0062/AME	MANOR FARM	386394	290670	Residential	Near Certain	7
South Staffs District		21/00770/FUL	SEDGLEY COURT	390101	293164	Residential	Near Certain	6
South Staffs District		20/00639/COU	BEARNETT HOUSE NURSING HOME	388338	294862	Residential	Near Certain	6
South Staffs District		16/01046/FUL	POPES LANE	387552	301022	Residential	Near Certain	6

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South Staffs District		20/00063/FUL	FIR SREET	389958	293179	Residential	Near Certain	7
South Staffs District		18/00349/FUL	SHUTT GREEN LANE	386388	309627	Residential	Near Certain	6
South Staffs District		18/00925/OFFR	FIR STREET	389960	293182	Residential	Near Certain	8
South Staffs District		19/00937/FUL	HIGH STREET	387794	293163	Residential	Near Certain	8
South Staffs District			Land north of Penkridge (Sites 010, 584 &420)	392568	315384	Residential	More than likely	1079
South Staffs District			Land at Boscomoor Lane (Site 006)	392614	313061	Residential	Reasonably foreseeable	80
South Staffs District			Land at Cherrybrook (Site 005)	393241	314314	Residential	Reasonably foreseeable	88
South Staffs District			Land at Station Rd (Site 224)	386242	303320	Residential	Reasonably foreseeable	85
South Staffs District			Land East of Bilbrook (Site 519)	388459	302947	Residential	More than likely	848
South Staffs District			Bilbrook House (Site 213)	387614	303104	Residential	More than likely	13
South Staffs District			Land at Histons Hill (SAD Site 228)	386926	303177	Residential	Reasonably foreseeable	29
South Staffs District			Land at Wergs Hall Rd (Site 419)	386866	302382	Residential	Reasonably foreseeable	317
South Staffs District			Loades PLC (Site 638)	398815	305902	Residential	More than likely	29

Local Plan Name	Site Ref	Application no	Address	Easting	Northing	Property type	Uncertainty	Dwellings
South Staffs District			Land at Norton Lane (Site 704)	399700	307756	Residential	Reasonably foreseeable	31
South Staffs District			Land at Holly Lane (Site 536)	398719	305693	Residential	Reasonably foreseeable	84
South Staffs District			Land at Fishers Farm (Site 730)	397969	306443	Residential	Reasonably foreseeable	10
South Staffs District			Land at Pool View (SAD Site 139)	399379	307839	Residential	Reasonably foreseeable	46
South Staffs District			Land at Wolverhampton Rd (Site 523)	397105	306653	Residential	Reasonably foreseeable	49
South Staffs District			Land at Saredon Rd (Site 119)	397006	307410	Residential	Reasonably foreseeable	60
South Staffs District			Land at Landywood Lane (safeguarded land), Chelsyn Hay (Site 136)	398398	306476	Residential	Reasonably foreseeable	109
South Staffs District			Land at Orton Lane (Site 416) - safeguarded	387141	294409	Residential	Reasonably foreseeable	57
South Staffs District			Land at Poolhouse Road (Sites 285, 562/415, 459)	386020	292842	Residential	Reasonably foreseeable	223
South Staffs District			Land at Four Ashes Rd (site 617)	389112	309138	Residential	Reasonably foreseeable	63
South Staffs District			Land off White Hill safeguarded land (Site 274)	383605	283990	Residential	Reasonably foreseeable	82
South Staffs District			Land off Wrottesley Park Rd safeguarded land (Site 239)	385514	299533	Residential	Reasonably foreseeable	150
South Staffs District			Land at Pear Tree Farm (Site 016)	397247	313351	Residential	Reasonably foreseeable	39

Local Plan Name	Site Ref	Application no	Address	Easting	Northing	Property type	Uncertainty	Dwellings
South Staffs District			Land between School Lane and Stafford Rd (Site 082)	391077	307355	Residential	Reasonably foreseeable	48
South Staffs District			Land adjacent Brookhouse Ln (Site 397)	393299	304986	Residential	Reasonably foreseeable	35
South Staffs District			Land off Ivetsey Rd (Site 379)	384815	312429	Residential	Reasonably foreseeable	18
South Staffs District			Hall End Farm (Site 251)	381999	298637	Residential	Reasonably foreseeable	17
South Staffs District			Land off Himley Lane (Site 313)	386473	290736	Residential	Reasonably foreseeable	22
South Staffs District			Land at Weeping Cross (Site 036c)	394811	320113	Residential	Reasonably foreseeable	81
South Staffs District			First School (1.5 FE) at Land North of Penkridge	392568	315384	Education	Reasonably foreseeable	225
South Staffs District			Expansion (1FE) to Penkridge Middle and High School	393434	313819	Education	Reasonably foreseeable	210
South Staffs District			First School (2FE) at Land East of Bilbrook	388459	302947	Education	Reasonably foreseeable	300
Stafford Borough		18/28423/OUT	Land Off	393973	322637	Residential	Near Certain	430
Stafford Borough		17/25759/OUT	LAND BETWEEN BLACKIES LANE AND SADDLER AVENUE	391801	333058	Residential	Near Certain	20
Stafford Borough		18/28342/FUL	CHETWYND CENTRE, 10 NEWPORT ROAD, STAFFORD	392207	322820	Residential	Near Certain	27
Stafford Borough		19/31429/FUL	3 EASTGATE STREET, STAFFORD	392320	323350	Residential	Near Certain	10
Stafford Borough		19/31678/OUT	LAND ADJACENT TO THE PADDOCKS, WOODSEAVES	380140	325259	Residential	Near Certain	8
Stafford Borough		20/31731/FUL	LAND ADJACENT HOPTON GRANGE, SANDON ROAD, HOPTON	393289	325896	Residential	Near Certain	6

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Stafford Borough		20/32673/FUL	FIRST FLOOR 4 - 7 AND 7A GAOLGATE STREET STAFFORD STAFFORDSHIRE ST16 2BG	392136	323353	Residential	Near Certain	7
Stafford Borough		19/31282/FUL	BROCKTON HALL BROCKTON LANE ECCLESHALL STAFFORD STAFFORDSHIRE ST21 6LY	381856	331609	Residential	Near Certain	7
Stafford Borough		20/32249/FUL	WALTON HILL RESIDENTIAL DEVELOPMENT WEST OF LONGHOPE DRIVE STONE STAFFORDSHIRE ST15 0FU	389011	333376	Residential	Near Certain	59
Stafford Borough		20/32041/OUT	FORMER GENERAL ELECTRIC / ALSTOM PREMISES, LICHFIELD ROAD, STAFFORD, ST17 4UJ	392967	322210	Residential	Near Certain	365
Stafford Borough		19/31613/OUT	LAND OFF CASTLE STREET, ECCLESHALL, STAFFORD, STAFFORDSHIRE	383299	329301	Residential	Near Certain	37
Stafford Borough		20/32039/REM	LAND NORTH OF BEACONSIDE - MARSTON GRANGE	391610	327232	Residential	Near Certain	700
Stafford Borough		16/25450/OUT	LAND NORTH OF BEACONSIDE, STAFFORD	392844	326604	Residential	Near Certain	2000
Stafford Borough		17/27731/FUL	LAND AT BURLEYFIELDS	390433	323143	Residential	Near Certain	1353
Stafford Borough		West SDL Remaining Allocation	West SDL Remaining Allocation	391386	323131	Residential	Reasonably foreseeable	352
Stafford Borough		East SDL Remaining Allocation	East SDL Remaining Allocation	394420	323622	Residential	Reasonably foreseeable	30
Walsall	HO0185		BENTLEY MOOR CLUB,BENTLEY DRIVE,WALSALL,WEST MIDLANDS	399952.5	298907.5	Residential	Reasonably foreseeable	10
Walsall	HO0147		ASK Motors, 664 Bloxwich Road, Walsall	400359.5	301307.2	Residential	Reasonably foreseeable	20
Walsall	HO0176		LAND ADJACENT BENTLEY GREEN, BENTLEY ROAD NORTH, WALSALL	398414.4	298244.7	Residential	Reasonably foreseeable	144
Walsall	HO0307		Former Royal Navy Club, 120 Elmore Green Road, Bloxwich	399556.2	302121.7	Residential	Reasonably foreseeable	10

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Walsall	HO0154		Eagle Public House, Creswell Crescent, Bloxwich	398755.6	303159.1	Residential	Reasonably foreseeable	17
Walsall	HO1314		GORWAY ROAD	402329.8	297270.5	Residential	Reasonably foreseeable	25
Walsall	HO0194		LICHFIELD ROAD, LITTLE BLOXWICH	400990.9	303131.3	Residential	Reasonably foreseeable	10
Walsall	HO0201		Rear of Pinson Road, Willenhall	395920.9	298514.8	Residential	Reasonably foreseeable	15
Walsall	HO0040		Riding Way, Short Heath	397725.6	300529.7	Residential	Reasonably foreseeable	14
Walsall	HO0072		Festival Avenue, Darlaston	397029.5	295908.6	Residential	Reasonably foreseeable	24
Walsall	HO0305		Cricket Close Allotments and Tennis Courts, Walsall	402634.9	297095.5	Residential	Reasonably foreseeable	42
Walsall	HO0117		New Invention Methodist Church, Lichfield Road, New Invention	397888.3	301705.1	Residential	Reasonably foreseeable	14
Walsall	HO0011		Somerford Place (former Dorsetts Scrapyard), Willenhall	395845.5	298320.3	Residential	Reasonably foreseeable	26
Walsall	HO0023b		Kendrick Place and Castle View Road, Moxley	396298.8	295774	Residential	Reasonably foreseeable	25
Walsall	HO0043		Watling Street (land north of Kings Deer Road), Brownhills	404685.5	306449.4	Residential	Reasonably foreseeable	15
Walsall	HO0044		Poplar Avenue (east), Bentley	398897.5	299365.9	Residential	Reasonably foreseeable	23
Walsall	HO0046		Noose Crescent (former Lakeside School), Willenhall	395233.4	299021.7	Residential	Reasonably foreseeable	59
Walsall	HO0053		Rear of 16 High Road, Lane Head, Willenhall	397394.9	300128.5	Residential	Reasonably foreseeable	29
Walsall	HO0061		Canalside Close, Goscote	401578.4	302093.2	Residential	Reasonably foreseeable	15
Walsall	HO0062		Former Metal Casements, Birch Street, Walsall	400640.5	299205.3	Residential	Reasonably foreseeable	95
Walsall	HO0065		Hollyhedge Lane (west side), Walsall	400455.8	298783.6	Residential	Reasonably foreseeable	14
Walsall	HO0066b		Walsall Iron and Steel, Wolverhampton Road, Walsall	400334.7	298814.6	Residential	Reasonably foreseeable	67
Walsall	HO0071		Festival Avenue (end of street), Darlaston	397153.9	295880.7	Residential	Reasonably foreseeable	10
Walsall	HO0125		Essington Lodge, Essington Road, New Invention	397250.3	301927.2	Residential	Reasonably foreseeable	23

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Walsall	HO0126		Field Road Education Development Centre	400171.4	301774.6	Residential	Reasonably foreseeable	25
Walsall	HO0310		Narrow Lane House and Neighbourhood Office Site, Narrow Lane, Walsall	399999.6	297391.1	Residential	Reasonably foreseeable	14
Walsall	HO0320		Birway Garage, Newhall Street, Willenhall	396638.3	298887.7	Residential	Reasonably foreseeable	28
Walsall	HO0313		Royal British Legion Club, Broad Lane Gardens, Bloxwich	399008.2	302898.5	Residential	Reasonably foreseeable	25
Walsall	HO0312		Pleck Working Men's Club, Pleck Road, Walsall	399966.6	297677	Residential	Reasonably foreseeable	11
Walsall	HO0304		BETWEEN 114 AND 120 AND 122A AND 127 WATLING STREET/ ROMAN CLOSE BROWNHILLS	404349.4	306543.5	Residential	Reasonably foreseeable	10
Walsall	TC11		Kirkpatricks, Charles Street	400808.9	298603.3	Residential	Reasonably foreseeable	15
Walsall	HO0162a		FORMER WORKS SITE C/O CEMETERY ROAD,VILLIERS STREET,WILLENHALL	396421.2	298962.5	Residential	Reasonably foreseeable	14
Walsall	HO0217a		Former Petrol Station corner of Bentley Mill Way, Wolverhampton Road West, Walsall	398609.4	298546.4	Residential	Reasonably foreseeable	21
Walsall	HO0137a		60,WALSALL ROAD,WILLENHALL,WALSALL, WEST MIDLANDS	397333.5	298643	Residential	Reasonably foreseeable	24
Walsall	HO0168b		GLADSTONE HOUSE, 45 CASTLE STREET, BROWNHILLS, WS8 7PX	404790.3	306754.3	Residential	Reasonably foreseeable	6
Walsall	HO0168a		HOWDLES LANE/CASTLE STREET, BROWNHILLS	404843.3	306773.3	Residential	Reasonably foreseeable	40
Walsall	HO0039a		Joynson Street (site of former Kings Hill JMI School), Darlaston	398138.9	296417.1	Residential	Reasonably foreseeable	17
Walsall	HO0041b		Mill Street, (former scrap yard), Walsall	401287.4	299395.8	Residential	Reasonably foreseeable	12
Walsall	HO0060c		Hollyhedge Lane (east side) (former Bradford Coal Wharf), Walsall	400515	298778.6	Residential	Reasonably foreseeable	52
Walsall	HO0124		Allen's Centre, Hilton Road, New Invention1	397418.3	302193.6	Residential	Reasonably foreseeable	22

Local Plan Name	Site Ref	Application no	Address	Easting	Northing	Property type	Uncertainty	Dwellings
Walsall	HO0041a		Hatherton Liberal Club, North Street, Walsall	401332.7	299428.4	Residential	Reasonably foreseeable	6
Walsall	HO0060b		Hollyhedge Lane (east side) (28), Walsall	400496.7	298825	Residential	Reasonably foreseeable	24
Walsall	HO0060a		Hollyhedge Lane (east side) (30 to 32), Walsall	400487.2	298863.3	Residential	Reasonably foreseeable	33
Walsall	HO0322a		ROWLEY VIEW, MOXLEY (former nursery and open space)	397370.7	295674.2	Residential	Reasonably foreseeable	15
Walsall	HO1360		ANCHOR HOUSE, ANCHOR ROAD, ALDRIDGE	405593.4	300630	Residential	More than likely	6
Walsall	HO1913		FORMER GARAGES AND LAND OFF SELBY WAY, FOUNTAINS WAY, BLOXWICH	398479.8	302794.5	Residential	More than likely	6
Walsall	HO2001		66-68, WEDNESBURY ROAD, WALSALL, WS1 3RR	400957.8	297831.9	Residential	More than likely	6
Walsall	HO1896		10, WHITEHORSE ROAD, BROWNHILLS, WALSALL, WS8 7PD	404316.8	306588.3	Residential	More than likely	6
Walsall	HO0162b		Villiers Street (AJM Buildings), Willenhall	396471.1	298978.1	Residential	More than likely	9
Walsall	HO2019		PEAR TREE FARM, FISHLEY LANE, BLOXWICH, WALSALL, WS3 3PZ	400868.9	304503.3	Residential	More than likely	6
Walsall	HO1720		2A Middleton Road, Brownhills, Walsall WS8 6JF	405284.9	306380.9	Residential	More than likely	9
Walsall	HO1372		THREE CROWNS P.H.,SUTTON ROAD,WALSALL,WS5 3AX	404744.8	298172.7	Residential	More than likely	7
Walsall	HO1642		BELL INN (REAR OF), THE GREEN, BLOXWICH, WALSALL WS3 2JN	399772	302488.5	Residential	More than likely	8
Walsall	HO1380		29 and 35 BILSTON LANE,WALSALL,WV13 2QF	397071.5	298335.5	Residential	More than likely	8
Walsall	HO1128		Land Rear of 3 Church Road to 39 High Street, Brownhills.	404615.6	305542	Residential	More than likely	8
Walsall	HO0205		Corner of Edison Road and Arkwright Road, Beechdale, Walsall	399637.9	300318.3	Residential	More than likely	9
Walsall	HO1921		11-12, NEW ROAD, WILLENHALL, WV13 2BL	396307.1	298412.3	Residential	More than likely	9

Local Plan Name	Site Ref	Application no	Address	Easting	Northing	Property type	Uncertainty	Dwellings
Walsall	HO1123		Former Aldridge Magistrates Court, Rookery Lane, Aldridge, Walsall	405732.8	300636.1	Residential	More than likely	9
Walsall	HO1327		72 AND 74, BROOK LANE, WALSALL WOOD, WALSALL, WS9 9NA	404881.3	303290.9	Residential	More than likely	11
Walsall	HO1930		19-20, VICARAGE PLACE, WALSALL, WS1 3NA	401282.6	298078	Residential	More than likely	12
Walsall	HO0217b		Former Lane Arms Public House corner of Bentley Road North, Wolverhampton Road West, Walsall	398553.6	298539.4	Residential	More than likely	12
Walsall	HO1756		3, WEST BROMWICH STREET, WALSALL	401320.5	297601.8	Residential	More than likely	13
Walsall	HO0093		Woodwards Road (former garage and vehicle storage yard), Walsall	399925.6	297592.1	Residential	More than likely	24
Walsall	HO1885		BEACON DAIRY FARM, DOE BANK LANE, GREAT BARR, WALSALL, WS9 0RQ	406404.1	296501.9	Residential	More than likely	14
Walsall	HO2023		GREYBURY HOUSE, BRIDGE STREET, WALSALL, WS1 1EP	401429.6	298531.3	Residential	More than likely	15
Walsall	HO1741		GOSCOTE HOUSE, GOSCOTE LANE, BLOXWICH, WALSALL, WS3 1SJ	401580.7	301752.8	Residential	More than likely	15
Walsall	HO0037		Bentley Road North (corner of King Charles Avenue), Bentley	398462.1	298495.5	Residential	More than likely	23
Walsall	HO2024		LEICESTER BUILDINGS, BRIDGE STREET, WALSALL WS1 1JY	401455.3	298535.9	Residential	More than likely	21
Walsall	HO1943		GLEBE HOUSE, GLEBE STREET, WALSALL, WS1 3LT	401099.1	297959.1	Residential	More than likely	36
Walsall	HO1542		Former Petrol Filling Station, Queslett Road East	407375	296050.2	Residential	More than likely	53
Walsall	TC52		Green Lane Police Station	401014.9	299009.2	Residential	More than likely	130
Walsall	HO0180		LAND AT CHURCHILL ROAD AND KENT ROAD TO THE REAR OF 2-14 KENT ROAD AND 201-205 CHURCHILL ROAD, BENTLEY, WALSALL	398946.8	299288.7	Residential	More than likely	26

Local Plan Name	Site Ref	Application no	Address	Easting	Northing	Property type	Uncertainty	Dwellings
Walsall	HO1898		Brown Jug PH, Sandbeds Road, Willenhall WV12 4EY	397299.1	300036.5	Residential	Reasonably foreseeable	6
Walsall	HO1491		Kings Hayes Farm	405260	302768.5	Residential	Reasonably foreseeable	15
Walsall	HO1460		Units South of Somerford Place, Willenhall	395840.4	298344.1	Residential	Reasonably foreseeable	8
Walsall	LC01B		Land behind West Bromwich Street, Caldmore	401357.6	297591	Residential	Reasonably foreseeable	6
Walsall	HO1480		Community Mental Health Unit,Daisy Bank Annex,Skip Lane,Walsall	404115.2	297622.4	Residential	Reasonably foreseeable	20
Walsall	HO2012		New Invention Workings Mens Victory Club, Lichfield Road, New Invention WV12 5BB	397445.4	301474.5	Residential	Reasonably foreseeable	11
Walsall	HO1478		Rear of Franchise Street	398344.7	296424.5	Residential	Reasonably foreseeable	6
Walsall	HO1455		15 MARSH STREET, WALSALL	401021.7	298543.3	Residential	Reasonably foreseeable	12
Walsall	HO1935		1 Freer Street and 28 Bridge Street, Walsall	401506.9	298548.8	Residential	Reasonably foreseeable	13
Walsall	LC15A		Rear of 196-228A Walsall Wood Road, Aldridge	405788.5	302000.4	Residential	Reasonably foreseeable	8
Walsall	HO1696		REAR OF 27, HIGH STREET, BROWNHILLS, WALSALL, WS8 6EF	404580.5	305580.1	Residential	Reasonably foreseeable	6
Walsall	LC20A		BENTLEY LIBRARY SITE, CHURCHILL ROAD/ QUEEN ELIZABETH AVENUE	398629.7	299065.3	Residential	Reasonably foreseeable	9
Walsall	IN0073.2		Summer Street (east side), Willenhall	395829	298436.6	Residential	Reasonably foreseeable	16
Walsall	HO1511		FELLOWS & JONES, PINFOLD STREET, DARLASTON WS10 8SY	397606.5	296433.9	Residential	Reasonably foreseeable	7
Walsall	HO1468		Pinfold Street (1 to 16)	397696.9	296511.7	Residential	Reasonably foreseeable	8
Walsall	LC06B		Dartmouth House, Ryecroft Place, Walsall, WS3 1SW	401674.9	300864.7	Residential	Reasonably foreseeable	10
Walsall	HO1729		Land adjacent to ASDA Bloxwich	399978.8	301717.2	Residential	Reasonably foreseeable	8
Walsall	HO1938		Land between 239 (The Prince) and 245 Stafford Street, Walsall	401128	298823.3	Residential	Reasonably foreseeable	21

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Walsall	HO1011		BOAK BUILDING, LAND BETWEEN STATION STREET/NAVIGATION STREET AND MARSH STREET, WALSALL.	400961	298407.6	Residential	Reasonably foreseeable	31
Walsall	HO1709		Pier Street, Brownhills	404682.2	305331.8	Residential	Reasonably foreseeable	8
Walsall	HO1519		Travelodge, Birmingham Road (Metro Inns)	402674.7	297195.7	Residential	Reasonably foreseeable	26
Walsall	HO2029		132-132a Lichfield Street, Walsall WS1 1SL	401569	298718	Residential	Reasonably foreseeable	28
Walsall	TC37		Lower Forster Street, former Jabez Clift	401633.2	298948.3	Residential	Reasonably foreseeable	7
Walsall	IN0126		Former London Works, Stafford Road, Darlaston	397373.8	296959.6	Residential	Reasonably foreseeable	19
Walsall	HO1596		Mill Street (railway cutting and rear of North Street industrial units)	401395.8	299507.9	Residential	Reasonably foreseeable	20
Walsall	HO1012		Mountrath Street car park	401200.9	298162.8	Residential	Reasonably foreseeable	7
Walsall	HO1733		Former Car Park at Walsall Wood Leisure Centre	405002.8	303650.5	Residential	Reasonably foreseeable	21
Walsall	IN0050.1		Network Rail, Meadow Street/ Tasker Street	400775	297979.7	Residential	Reasonably foreseeable	21
Walsall	HO1010		LAND BETWEEN STATION STREET/NAVIGATION STREET AND MARSH STREET, WALSALL.	400985.6	298471.7	Residential	Reasonably foreseeable	210
Walsall	HO2028		Villiers Street (south side), Willenhall	396483.3	298920.2	Residential	Reasonably foreseeable	38
Walsall	IN0031.2		Green Lane/ Old Birchills, Walsall	400578.2	299561.8	Residential	Reasonably foreseeable	22
Walsall	TC02		Old Square Phase 3	401496.1	298469.7	Residential	Reasonably foreseeable	40
Walsall	IN0073.1		Summer Street (west side), Willenhall	395783	298447	Residential	Reasonably foreseeable	15
Walsall	IN0070.71		Temple Bar (former Marrens), Willenhall	396215.5	299005	Residential	Reasonably foreseeable	18
Walsall	HO2011		Bridge House, 47-55 Bridge Street, Walsall	401549.4	298600.8	Residential	Reasonably foreseeable	43
Walsall	HO1939		Green Lane - Stafford Street, Walsall	401063.1	298792.2	Residential	Reasonably foreseeable	357

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Walsall	IN0075.12		Moat Street, Willenhall (east)	396337.6	298811.8	Residential	Reasonably foreseeable	9
Walsall	IN0075.22		Stafford Street , Willenhall (former Ingersoll Rand)	396314.5	298753.8	Residential	Reasonably foreseeable	10
Walsall	HO1469		Aldridge Manor House	405937.1	300822.1	Residential	Reasonably foreseeable	58
Walsall	HO1736		Pelsall Villa Football Club and Old Bush Inn	402371.1	302613.8	Residential	Reasonably foreseeable	31
Walsall	HO1022		Lower Rushall Street (south of Intown Row)	401667	298621.5	Residential	Reasonably foreseeable	13
Walsall	335		Bloxwich Hospital, Reeves Street, Walsall	399772.3	301756.9	Residential	Reasonably foreseeable	13
Walsall	HO2026		South Of Harden Road, Walsall	402098.6	300809.4	Residential	Reasonably foreseeable	150
Walsall	HO1631		Broadway North Centre, Broadway North, Walsall WS1 2QA	402726.4	298106.1	Residential	Near Certain	16
Walsall	HO1286		PORTLAND BUILDINGS, PORTLAND ROAD, ALDRIDGE, WALSALL, WS9 8PR	405593	300600.6	Residential	Near Certain	6
Walsall	LC12A		LAND ADJACENT TO 64 HIGH STREET, MOXLEY	396574	295870.3	Residential	Near Certain	6
Walsall	HO1058		At corner of Old Birchills and Reedswood Close - to rear and side of Rose and Crown Public House,Old Birchills,Walsall.	400388.1	299310.8	Residential	Near Certain	6
Walsall	HO0323		1 and 3 Woodside Road & 1 and 3 Woodside Close, Walsall	404039.6	296619.6	Residential	Near Certain	6
Walsall	HO1714		Badgers Yard, Aldridge Road, Walsall	403481.2	299061.9	Residential	Near Certain	7
Walsall	HO1129		RUDGE CLOSE GARAGES, SHORT HEATH	397362.7	299758.1	Residential	Near Certain	8
Walsall	HO1907		38-39, Lichfield Street, WALSALL, WS1 1TJ	401670.1	298938.5	Residential	Near Certain	9
Walsall	HO1125		Crown and Anchor, West Bromwich Street, Walsall WS1 4BP	401447.5	297475.7	Residential	Near Certain	9
Walsall	HO1132		42, 43 & 44 BUTTS ROAD & REAR OF 5 WESTBOURNE STREET, WALSALL, WS4 2BW	401874.4	299421.4	Residential	Near Certain	11
Walsall	HO0150b		British Lion Works, Forest Lane, Walsall	400977	300545.3	Residential	Near Certain	16

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Walsall	HO1040		FORMER BRIDGEWATER P.H.,STONEY LANE,LITTLE BLOXWICH,WALSALL,WS3 3QY	400647.8	303227.1	Residential	Near Certain	18
Walsall	HO0014a		Pinson Road (Little London School), Willenhall	396187.4	298729.3	Residential	Near Certain	20
Walsall	HO1041		PINFOLD/MILL STREET	397391	296437.1	Residential	Near Certain	22
Walsall	HO1043		REVIVAL STREET (Precision Close)	400112.4	301918.1	Residential	Near Certain	24
Walsall	HO0321		Willenhall Coachcraft, 348 Wolverhampton Road West, Willenhall	397804.8	298868.6	Residential	Near Certain	33
Walsall	HO0317		FORMER WARRENERS ARMS, HIGH STREET, BROWNHILLS	405074.7	305045.2	Residential	Near Certain	45
Walsall	HO1037		FORMER CHAMBERLAIN & HILL, REEVES STREET	399608.5	301636.4	Residential	Near Certain	69
Walsall	HO0181		LAND AT FORMER CAPARO WORKS, BETWEEN THE WYRLEY & ESSINGTON CANAL AND MINER STREET, WALSALL	400373.4	299539.9	Residential	Near Certain	252
Walsall	HO0029		Goscote Lane Copper Works, Goscote	401412.6	302302.9	Residential	Near Certain	263
Walsall	HO0027		Goscote Lodge Crescent (Site B), Goscote	401895.5	301416.9	Residential	Near Certain	407
Walsall	HO1787		Glastonbury Crescent (C)	398365.7	302517.1	Residential	More than likely	6
Walsall	HO1807		Nursery Road	400154.2	301478.5	Residential	More than likely	6
Walsall	HO1854		St Margarets Road	402066	303547	Residential	More than likely	6
Walsall	HO1840		Lancaster Avenue	405686.7	301912.8	Residential	More than likely	6
Walsall	HO1868		William Harper Road	396814.8	298107.7	Residential	More than likely	6
Walsall	HO1825		Wolverhampton Road	399829.2	298821.4	Residential	More than likely	6
Walsall	HO1775		Brereton Road	397497.6	301337.8	Residential	More than likely	7
Walsall	HO1855		Hollemeadow Avenue (1)	400766.7	301314.5	Residential	More than likely	7

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Walsall	HO1803		Wolverson Close	397497.7	299993	Residential	More than likely	8
Walsall	HO1793		Somerfield Road	400027.5	301177.6	Residential	More than likely	11
Wolverhampton	39520	22/00908/FUL 16/01422/FUL	Springvale Sports and Social Club, Millfields Road	394128	296106	Residential	More than likely	8
Wolverhampton	39350	17/01089/FUL 19/01464/RC	Former Wednesfield High School Playing Fields	395208	300281	Residential	Near Certain	40
Wolverhampton	39300	21/01589/FUL 20/00361/FUL 15/01422/FUL	Land Adjacent to Halfway House 151 Tettenhall Road Wolverhampton West Midlands	389892	299121	Residential	Near Certain	6
Wolverhampton	39140	16/01046/FUL 18/00929/RC	Primeco Limited 66 - 70 Lichfield Street City Centre Wolverhampton West Midlands WV1 1DB	391658	298747	Residential	Near Certain	6
Wolverhampton	39000	16/01068/FUL	The Former British Legion Club Penn Road Wolverhampton West Midlands WV4 5LZ	388623	295274	Residential	Near Certain	9
Wolverhampton	38770	17/00228/FUL	Land Behind 77 To 91 D'Urberville Road Wolverhampton West Midlands	392922	297073	Residential	Reasonably foreseeable	6
Wolverhampton	38620	22/00178/FUL 14/01292/OUT 17/01495/FUL 19/00106/FUL	Land rear of 45 Rookery Road	393241	294993	Residential	Near Certain	22
Wolverhampton	38610	16/00861/FUL 18/01295/RC	Land corner of Stafford St and Bone Mill Lane WV1 1NT	391459	299794	Residential	Near Certain	600
Wolverhampton	D78	SS0022 & SS0035	Stowheath Day/Childrens Centres, Stowheath Lane, WV1 2TW	393634	297507	Residential	More than likely	53
Wolverhampton	38751	15/01311/FUL 18/01316/RC	Samson And Lion (buildings), Newbolt Road WV14 7NP	395488	296710	Residential	Near Certain	6
Wolverhampton	D20	SS0027	Beckminster House, Beckminster Road	389972	297186	Residential	Reasonably foreseeable	15
Wolverhampton	40180	04/0451/FP/C 18/00239/FUL	Blunts Shoeshop, 5-15 Broad Street, Wolverhampton	391598	298856	Residential	Reasonably foreseeable	14
Wolverhampton	32700	20/00672/FUL	Former Dale House, Showell Circus	392455	301497	Residential	Near Certain	11

Local Plan Name	Site Ref	Application no	Address	Easting	Northing	Property type	Uncertainty	Dwellings
Wolverhampton	27372	20/01358/FUL; 17/01209/FUL	FMR Royal Hospital, Royal Hospital Development Area, All Saints	391990	298099	Residential	Near Certain	192
Wolverhampton	36440	11/00639/OUT	FMR Rookery Lodge, Woodcross Lane	393261	294916	Residential	Reasonably foreseeable	16
Wolverhampton	37140	19/01287/OUT 12/00320/OUT 16/01337/OUT	Land at Railway Drive, Bilston	395208	296287	Residential	Reasonably foreseeable	47
Wolverhampton	27350	23/00119/OUT 11/00430/FUL	Land On the Corner of St Marks Road and Stephenson Street Wolverhampton WV3 0QH	390778	298439	Residential	Reasonably foreseeable	24
Wolverhampton	37750	20/00397/OUT 14/00068/OUT 17/01434/REM	Land Adjacent to Sunnyside Taylor Road Wolverhampton West Midlands	392910	296308	Residential	Near Certain	14
Wolverhampton	33842	12/01119/EXT	Former Bilston College Site, 40 and adj land, Mount Pleasant (new build)	395171	296736	Residential	Reasonably foreseeable	44
Wolverhampton	37870	16/01175/FUL 17/01253/FUL	Land to the Rear Of 42 - 48 Goldthorn Hill Wolverhampton West Midlands WV2 3HU	391572	296654	Residential	Near Certain	9
Wolverhampton	38490	16/00075/PACOU	58-60 Lichfield Street, City Centre	391566	298759	Residential	Reasonably foreseeable	29
Wolverhampton	36770	19/00923/FUL	Shopping Core / Southside, Wolverhampton City Centre	391372	298344	Residential	Reasonably foreseeable	57
Wolverhampton	36780		Westside, Wolverhampton City Centre	391106	298391	Residential	Reasonably foreseeable	313
Wolverhampton	36510	16/00674/OUT	Fmr Bushbury Reservoir, Showell Road	391717	300913	Residential	Reasonably foreseeable	12
Wolverhampton	36810		Cambridge Street Open Space, Canalside Quarter	391965	299425	Residential	Reasonably foreseeable	43
Wolverhampton	32650	06/01688/OUT undetermined	Crane foundry, Canalside Quarter	392347	298708	Residential	Reasonably foreseeable	106
Wolverhampton	32660	20/01346/FUL	"Canalside": Horseley Fields / Edward Vaughan Stamping Works / Union Mill, Canalside Quarter	392326	298601	Residential	Near Certain	366
Wolverhampton	36610	17/00610/OUT	East of Qualcast Road	392661	298850	Residential	Near Certain	101
Wolverhampton	36830		Mill Street Depot, Canalside Quarter	392144	298742	Residential	Reasonably foreseeable	35

Local Plan Name	Site Ref	Application no	Address	Easting	Northing	Property type	Uncertainty	Dwellings
Wolverhampton	36820		Culwell Street Depot and adjoining land, Canalside Quarter	391998	299126	Residential	Reasonably foreseeable	599
Wolverhampton	36800		Stafford Street / Cannock Road, Canalside Quarter	391596	299217	Residential	Reasonably foreseeable	210
Wolverhampton	32690	22/00683/FUL	Former Eye Infirmary, Chapel Ash	390409	298613	Residential	Near Certain	75
Wolverhampton	28840		Land at Grimstone St / Culwell St, Canalside Quarter	391946	299241	Residential	Reasonably foreseeable	285
Wolverhampton	36620	18/01445/OUT	West of Qualcast Road	392496	298759	Residential	Reasonably foreseeable	119
Wolverhampton	36690		South of Oxford Street	395909	295655	Residential	Reasonably foreseeable	20
Wolverhampton	36870	20/00536/FUL	Dudley Road / Bell Place, Blakenhall Character Area	391519	297827	Residential	Reasonably foreseeable	100
Wolverhampton	36640		Delta Trading Estate, Bilston Road	392676	297749	Residential	Reasonably foreseeable	70
Wolverhampton	36680		Greenway Road	395351	295670	Residential	Reasonably foreseeable	140
Wolverhampton	33841	12/01119/EXT	Former Bilston College Site, 40 and adj land, Mount Pleasant (conversion)	395171	296736	Residential	Reasonably foreseeable	20
Wolverhampton	31750	21/00224/RC 08/00360/FP/M 20/00059/FUL	Land at Cambridge Street, Wolverhampton (private)	391913	299538	Residential	Near Certain	44
Wolverhampton	38070	17/01427/PACOU	First Floor and Second Floor 28 - 36 Church Street Bilston Wolverhampton WV14 0AX	395064	296465	Residential	Near Certain	10
Wolverhampton	39980	16/01434/FUL	Land Adjacent 1 Wood Street Bilston Wolverhampton West Midlands	394956	296400	Residential	Near Certain	6
Wolverhampton	40110	20/01298/REM 17/00671/OUT 19/00980/REM 19/00981/FUL	Goodyear Tyre Factory, Stafford Road	391425	301265	Residential	Near Certain	126
Wolverhampton	40530		Land at Hall Street / The Orchard	395097	296417	Residential	Reasonably foreseeable	21
Wolverhampton	36743	20/00750/REM 17/00610/OUT	Heath Town Estate Masterplan - HRA7 Long Ley	392819	299260	Residential	Near Certain	20

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Wolverhampton	36746	20/01507/REM 17/00610/OUT	Heath Town Estate Masterplan - WVL1 Tremont Street	392547	299222	Residential	Near Certain	66
Wolverhampton	36747	20/01448/REM 17/00610/OUT	Heath Town Estate Masterplan - WVL2/WVL3 - Inkerman Street	392661	299112	Residential	Near Certain	8
Wolverhampton	36748	20/00750/REM 20/01448/REM 17/00610/OUT	Heath Town Estate Masterplan - WVL4/WVL5/WVL6 Chervil Rise	392781	299350	Residential	Near Certain	36
Wolverhampton	36745	17/00610/OUT	Heath Town Estate Masterplan - HRA10 Inkerman Street (community housing)	392717	299037	Residential	Near Certain	6
Wolverhampton	36742	20/00750/REM 20/00751/REM 17/00610/OUT	Heath Town Estate Masterplan - HRA4/HRA5 Chervil Rise	392764	299341	Residential	Near Certain	30
Wolverhampton	36749	20/01448/REM 17/00610/OUT	Heath Town Estate Masterplan - WVL 7 Long Ley	392779	299215	Residential	Near Certain	8
Wolverhampton	36741	17/00610/OUT 19/00137/REM	Heath Town Estate Masterplan Phase 1: HRA1/HRA2/HRA3 Hobgate Road & HRA6 Tithe Court	392857	299533	Residential	Near Certain	40
Wolverhampton	40390	18/01228/FUL	Land Rear Of 79 - 81 Lichfield Street City Centre Wolverhampton West Midlands	391725	298794	Residential	Near Certain	8
Wolverhampton	40600	18/00638/FUL	The Croft Resource Centre 87 Greencroft Bilston WV14 0DQ	394611	296649	Residential	Near Certain	10
Wolverhampton	40670	21/01194/FUL 19/00263/PAOCOU	265 Tettenhall Road Wolverhampton WV6 0DE	389492	299656	Residential	Near Certain	12
Wolverhampton	40950	18/00956/FUL 19/00864/FUL	Former YWCA 19 - 20 Middleway Green Wolverhampton WV14 6DJ	394377	297557	Residential	Near Certain	6
Wolverhampton	40960	18/00710/FUL	19, 20, 21 Worcester Street Wolverhampton West Midlands WV2 4LD	391244	298289	Residential	Near Certain	6
Wolverhampton	40970	18/00716/FUL	Ambassador 61 Worcester Street Wolverhampton West Midlands WV2 4LQ	391189	298262	Residential	Near Certain	7
Wolverhampton	41030	18/00714/FUL	62 - 63 Worcester Street Wolverhampton West Midlands WV2 4LQ	391202	298269	Residential	Near Certain	6

Local Plan Name	Site Ref	Application no	Address	Easting	Northing	Property type	Uncertainty	Dwellings
Wolverhampton	40870	18/00872/FUL 18/01291/FUL	6 Compton Road Wolverhampton West Midlands WV3 9PH	390499	298670	Residential	Near Certain	6
Wolverhampton	D86	LS0446 & HS0109	Giffard Road Garage Site and Open Space	393784	297450	Residential	Reasonably foreseeable	8
Wolverhampton	41710	17/01441/FUL	Land Between 30 And 31 Upper Villiers Street Wolverhampton	391117	296945	Residential	Near Certain	9
Wolverhampton	41140	22/01277/FUL 18/00999/FUL	Reedham Gardens Open Space, WV4 4HE	388943	296346	Residential	Near Certain	19
Wolverhampton	41850	22/00710/REM 18/01156/FUL	The Woodbine Wood Lane Wolverhampton WV10 8HJ	391723	302472	Residential	Near Certain	30
Wolverhampton	41290	19/00146/FUL	23- 24 Queen Square Wolverhampton WV1 1TZ	391386	298653	Residential	Near Certain	10
Wolverhampton	41840	19/00284/FUL 20/00875/RC	Fmr Leaping Wolf PH, 107 Waterloo Road Wolverhampton WV1 4RB	391191	299454	Residential	Near Certain	25
Wolverhampton	41630	20/00553/PACOU	George House St Johns Square Wolverhampton WV2 4BZ	391437	298212	Residential	Near Certain	44
Wolverhampton	41310	22/00026/FUL 19/00909/PACOU	267 Tettenhall Road Wolverhampton WV6 0DE	389484	299673	Residential	Near Certain	15
Wolverhampton	41540	21/00568/FUL 20/00617/PACOU 19/00915/PACOU	Allen Martin First Floor and Second Floor 504 Dudley Road Wolverhampton WV2 3AA	391489	297679	Residential	Near Certain	16
Wolverhampton	41270	21/00029/FUL 19/00942/FUL 20/00458/FUL	222 Wellington Road Bilston WV14 6RL	393879	297019	Residential	Near Certain	8
Wolverhampton	41910		Fmr Pipe Hall, The Orchard, Bilston	395060	296399	Residential	Reasonably foreseeable	38
Wolverhampton	43040		Fmr Probert Court / Health Centre, Probert Road	391058	302262	Residential	Reasonably foreseeable	35
Wolverhampton	D93	SS0047	Former Oxley Day Training Centre. Probert Road	391152	302264	Residential	More than likely	23
Wolverhampton	41930	17/01200/PACOU 17/01349/CPL 16/00050/PAC	Fmr Construction House, 24 Birch Street, Wolverhampton City Centre	391030	298795	Residential	Near Certain	108

Local Plan Name	Site Ref	Application no	Address	Easting	Northing	Property type	Uncertainty	Dwellings
		OU 16/00796/CPL						
Wolverhampton	41990	20/00439/FUL	Fmr Garage Site, Park View Road, Stowlawn	394574	297939	Residential	Near Certain	7
Wolverhampton	42010	20/00674/FUL	Land adj 9 Ettingshall Road / junction Sweetbriar Road	393143	297124	Residential	Near Certain	12
Wolverhampton	42030	20/00673/FUL	Fmr Bilston Tennis Club, Villiers Avenue	394704	296883	Residential	Near Certain	12
Wolverhampton	42040	20/00953/PAO COU	Fmr Childrens Services Offices, Beldray Building, 66 Mount Pleasant, Bilston	395303	296816	Residential	Near Certain	22
Wolverhampton	42050	20/00443/FUL	Land adj 97 Myatt Avenue	392562	296636	Residential	Near Certain	7
Wolverhampton	42070	20/00058/FUL	Bushbury Magic Gardens, Leacroft Avenue	392477	302067	Residential	Near Certain	8
Wolverhampton	42170	20/01452/FUL	Windmill House 54 Windmill Lane Wolverhampton WV3 8HG	387370	297855	Residential	Near Certain	9
Wolverhampton	42400	20/00964/FUL	4-6 St Johns Street And 22-23 Victoria Street Wolverhampton WV1 3NP	391326	298485	Residential	Near Certain	14
Wolverhampton	42450	21/01760/FUL 19/01356/OUT	Land adj 50 Ward Street Ettingshall Wolverhampton WV2 2NT	393666	296766	Residential	Near Certain	6
Wolverhampton	42550	22/00548/REM 21/00135/FUL	Fmr Beatties, Darlington Street, Wolverhampton City Centre WV1 3PQ	391252	298579	Residential	Near Certain	306
Wolverhampton	42580	20/01557/FUL	Former Crown and Cushion Bank Street Bradley Wolverhampton	395379	295375	Residential	Near Certain	8
Wolverhampton	42770	22/00236/FUL 20/01449/PAO COU	PTP Training 20 Waterloo Road Wolverhampton WV1 4BL	391154	298763	Residential	Near Certain	8
Wolverhampton	42790	20/01296/FUL	Rock House Old Hill Wolverhampton WV6 8QB	388967	300098	Residential	Near Certain	8
Wolverhampton	42810	19/01424/FUL	Slade Hill Riches Street Wolverhampton WV6 0EJ	389864	299259	Residential	Near Certain	6
Wolverhampton	42830	21/00124/FUL	The Merridale Arms Merridale Street Wolverhampton WV3 0RE	390994	298116	Residential	Near Certain	6
Wolverhampton	42840	22/00432/RC 20/00956/FUL	The Studios 24 Birch Street Wolverhampton WV1 4JA	391031	298795	Residential	Near Certain	6

Local Plan Name	Site Ref	Application no	Address	Easting	Northing	Property type	Uncertainty	Dwellings
Wolverhampton	42880	20/01232/FUL	Fmr Happy Wanderer PH, Green Lanes, Bilston WV14 6BZ	394431	297343	Residential	Near Certain	33
Wolverhampton	42890	22/00028/OUT	Fmr Talisman PH, Wildtree Avenue	393532	302404	Residential	Reasonably foreseeable	18
Wolverhampton	42900	10/01257/OUT	Land Opp 3 Rookery Street, Wednesfield	394247	300069	Residential	Reasonably foreseeable	17
Wolverhampton	42910	19/01331/FUL	Eagle Works, Great Brickkiln Street	390845	298250	Residential	More than likely	48
Wolverhampton	42920	11/00578/EXT	85-87 Tettenhall Road	390219	298885	Residential	Near Certain	8
Wolverhampton	42930	21/01415/FUL	Bond House, St John's Square, Wolverhampton City Centre	391379	298218	Residential	Near Certain	34
Wolverhampton	42940	21/00902/FUL	Fmr Gym, Craddock Street WV6 0QJ	390464	299903	Residential	Reasonably foreseeable	48
Wolverhampton	42950	21/01710/FUL	Sunbeamland, Paul Street, Blakenhall	391141	297995	Residential	Near Certain	171
Wolverhampton	42960	21/01574/FUL	Fmr Rookery Tavern, Wood Street, Lanesfield WV4 6LH	393129	295438	Residential	Reasonably foreseeable	24
Wolverhampton	42970	20/00907/FUL	Fmr Revolution Bar, 10 - 12 Princess Street Wolverhampton WV1 1HW	391572	298742	Residential	Near Certain	19
Wolverhampton	42980	20/01530/FUL	Land West Of 21 Rookery Street, Wednesfield	394280	300115	Residential	Near Certain	10
Wolverhampton	42990	21/00123/FUL	50-52 Willenhall Road Bilston WV14 6NW	395690	297097	Residential	Near Certain	11
Wolverhampton	43000	22/00006/PAOCOU 21/01207/PAOCOU	Pearl House 15 - 17 Waterloo Road, Wolverhampton City Centre WV1 4DJ	391100	298747	Residential	Near Certain	43
Wolverhampton	43010	21/01164/FUL	24 Lichfield Street Bilston WV14 0AG	395034	296525	Residential	Near Certain	12
Wolverhampton	43020	22/00196/FUL	Garage Site Behind 6 To 52 Junction Road	393506	297111	Residential	Near Certain	10
Wolverhampton	36720		Bluebird Industrial Estate and site to rear, Park Lane	392409	300213	Residential	Reasonably foreseeable	130
Wolverhampton	43230	20/01181/FUL	Rosewood Lodge Guest House 4 Rose Street Wolverhampton West Midlands WV14 8TS	395567	294944	Residential	Near Certain	6

Local Plan Name	Site Ref	Application no	Address	Easting	Northing	Property type	Uncertainty	Dwellings
Wolverhampton	43210	20/01426/FUL	Site Adjacent to Bilston Post Office Hall Street Pipes Meadow Wolverhampton West Midlands	395130	296363	Residential	Near Certain	8
Wolverhampton	43441	19/01269/FUL	Fmr Northicote Secondary School, Northwood Park Road, WV10 8ER	392255	303173	Residential	Near Certain	118
Wolverhampton	43280	21/00388/PAOCOU	67 Compton Road Wolverhampton West Midlands WV3 9Q2	390061	298677	Residential	Near Certain	7
Wolverhampton	43360	21/00364/FUL	Old Ash Tree Inn 269 Dudley Road Wolverhampton WV2 3JU	391752	296665	Residential	Near Certain	7
Wolverhampton	43490	21/01326/PAOCOU	129 Horseley Fields Wolverhampton West Midlands	392014	298589	Residential	Near Certain	6
Wolverhampton	43060	21/00351/FUL	15 - 16 King Street City Centre Wolverhampton West Midlands	391579	298711	Residential	Near Certain	6
Wolverhampton	43120	21/00872/FUL	198 Cannock Road Wednesfield Wolverhampton West Midlands WV10 8PT	393583	302009	Residential	Near Certain	6
Wolverhampton	43090	21/00053/FUL	17 St Judes Road Wolverhampton WV6 0EB	389867	299465	Residential	Near Certain	8
Wolverhampton	43160	21/00694/FUL	Land Between 90 And 106 (formerly The Site of The Borough Arms PH) Bunkers Hill Lane Wolverhampton West Midlands	395316	297322	Residential	Near Certain	9
Wolverhampton	43150	21/01530/FUL	The Outback 50 Queen Street City Centre Wolverhampton West Midlands WV1 3BJ	391678	298634	Residential	Near Certain	9
Wolverhampton	43410	21/01461/FUL	Land West Of 7 Church Road Oxley Wolverhampton West Midlands	391307	302238	Residential	Near Certain	9
Wolverhampton	43442	19/01269/FUL	Fmr Northicote Secondary School, Northwood Park Road, WV10 8ER	392255	303173	Residential	Near Certain	60
Wolverhampton	D94	ED0064	Former Loxdale Primary School, Chapel St, Bradley	395691	295916	Residential	More than likely	100
Wolverhampton	D95	HS6443 & HS0148	Fmr Adventure Playground and Garages, Old Fallings Crescent	392687	300914	Residential	More than likely	25

Employment site development log

Local Plan Name	Site Ref	Application no	Address	Easting	Northing	Property type	Uncertainty	No. of jobs
Cannock Chase	R144a		Land at Wellington Drive, Rugeley	404454	317898	Mixed-Use	Reasonably foreseeable	136

Local Plan Name	Site Ref	Application no	Address	Easting	Northing	Property type	Uncertainty	No. of jobs
Cannock Chase	C511		Avon Road/Hallcourt Lane, Cannock	398308	310119	Mixed-Use	Reasonably foreseeable	76
Cannock Chase	C508		Backcrofts Car Park, Cannock	398015	310043	Mixed-Use	Reasonably foreseeable	54
Cannock Chase	C505		Park Road Bus Station, Cannock	398142	310377	Mixed-Use	Reasonably foreseeable	141
Cannock Chase	CE18		Kingswood Lakeside Extension 2	400255	308701	Employment	Reasonably foreseeable	4183
Cannock Chase	RE3		Former Power Station off A51(adjacent to Towers Business Park), Rugeley	405904	317201	Employment	Reasonably foreseeable	442
Cannock Chase	RE24		Rugeley Power Station, Rugeley	405601	317840	Employment	More than likely	1051
Cannock Chase	CE71		Hill Farm, 84 Hayfield Hill, Cannock Wood, Rugeley, WS15 4RU	404544	311489	Employment	Reasonably foreseeable	109
Cannock Chase	NE1		Land off Norton Green Lane, Norton Canes	401674	307391	Employment	Reasonably foreseeable	109
Cannock Chase	NE6		Jubilee Field, Lime Lane/Watling Street, Norton Canes	402122.2	306698.1	Employment	Reasonably foreseeable	389
Cannock Chase	NE12		Watling Street Business Park	402208	306592.6	Employment	Reasonably foreseeable	292
Cannock Chase	CE61		Gestamp, Watling Street/Wolverhampton Road, Cannock	397177.2	308990.9	Employment	Reasonably foreseeable	72
Cannock Chase	RE4		Towers Business Park, Phase 2, Wheelhouse Road, Rugeley	405112.8	317699	Employment	Reasonably foreseeable	164
Cannock Chase	RE27		Land at Power Station Road/A51, Rugeley	405063.8	317942.5	Employment	Reasonably foreseeable	394
Cannock Chase		CH/15/0048 & CH/17/279	McArthur Glenn West Midlands Designer Outlet, Mill Green, Eastern Way, Cannock	399097	310057	Employment	0	226
Cannock Chase		CH/20/085	Linkway Retail Park, Watling Street, Cannock, WS11 1TD	396896	308956	Employment	Near Certain	216
Cannock Chase		CH/20/043	Rugeley Leisure Centre, BrunthillBurnthill Lane, Rugeley, WS15 2HZ	403978	317653	Employment	Near Certain	381

Local Plan Name	Site Ref	Application no	Address	Easting	Northing	Property type	Uncertainty	No. of jobs
Cannock Chase		CH/22/0052	Silver Trees Caravan and Chalet Park, Stafford Brook Road, Rugeley, WS15 2TX	401427	317298	Employment	Near Certain	327
Cannock Chase		CE40/C506	Beecroft Road Car Park, Cannock	398142	310377	Employment	Reasonably foreseeable	76
Cannock Chase		CE73/C504	Land bound by Ringway, Church Street and Market Hall Street, Cannock Town Centre, WS11 1EB	398140	310254	Employment	Reasonably foreseeable	87
Dudley	DUE323		Fountain Lane	394979	293525	Employment	More than likely	234
Dudley	DUE326		United Steels site, Gibbons Industrial Park	390351.2	289185.1	Employment	Near Certain	28
Dudley	DUE123		Dandy Bank Road Phases 2 and 3	390438.1	289640.1	Employment	Near Certain	173
Dudley	DUE136		Narrowboat Way	393070.5	288075.8	Employment	Reasonably Foreseeable	50
Dudley	DUE321		Bean Road, Coseley	394400.1	293019.2	Employment	More than likely	80
Dudley			Land off Timmis Road, Lye	391567.5	284669.3	Employment	Near Certain	33
East Staffs District	45986	P/2012/01467	Branston Locks Lawns Farm Branston Road Tatenhill Staffordshire DE13 9SB	421643	322367	Mixed-Use	Near Certain	97
East Staffs District	45987	P/2018/00358	Land to the West of Uttoxeter (phase 3a) A50 Bypass Uttoxeter ST14 7RB	407214	334518	Employment	0	2043
East Staffs District	45246	P/2019/00408	Unit B57 & B79 Land South of Lichfield Road Branston DE14 3EQ	422008	320344	Employment	Near Certain	537
East Staffs District	45246 & 45989	P/2019/00409	Unit B38 & B41 Land South of Lichfield Road Branston DE14 3EQ	422008	320344	Employment	Near Certain	325
East Staffs District	45246	P/2020/00692	Land South of Lichfield Road Branston DE14 3EQ	422008	320344	Employment	Near Certain	734
East Staffs District	45986	P/2020/01468	Quintus - Phase 1 Branston Locks Branston Road Tatenhill Staffordshire DE13 9SB	421697	322322	Employment	Near Certain	1081

Local Plan Name	Site Ref	Application no	Address	Easting	Northing	Property type	Uncertainty	No. of jobs
East Staffs District	45986	P/2021/00777	Quintus - Phase 2 Branston Locks Branston Road Burton Upon Trent DE13 9SB	421697	322322	Employment	Near Certain	745
East Staffs District	45938	P/2014/00717	The Gardens 26 Dovecliff Road Stretton Staffordshire DE13 0DJ	425853	327085	Employment	More than likely	150
East Staffs District	45975	P/2017/01562	Abbots Bromley Cricket Club Lichfield Road Abbots Bromley Staffordshire	408398	324314	Employment	Near Certain	1157
East Staffs District	45989	P/2015/00012	Land Adjacent to Burton Gateway Lichfield Road Branston Staffordshire	421069	319197	Employment	Near Certain	545
East Staffs District	46119	PA/00396/041	The Craythorne Craythorne Road Stretton Staffordshire DE13 0AZ	424466	327172	Employment	Reasonably foreseeable	60
East Staffs District	46126	P/2016/01529 & P/2020/00838	Phase 2 Unit 2 Centrum West Callister Way Burton Upon Trent Staffordshire	422836	323338	Employment	Near Certain	330
East Staffs District	46240	P/2018/00446	Units 17A and 17B Graycar Business Park Walton Lane Barton Turn Barton under Needwood DE13 8EN	420678	318554	Employment	Near Certain	143
East Staffs District	46284	P/2017/01162	Barton Marina, Barton Turn, Barton under Needwood , Staffordshire, DE13 8D	419932	318133	Employment	0	173
East Staffs District	46338	P/2019/00640	Brankley Farm Dunstall Lane Stoneyford Barton under Needwood Staffordshire DE13 8BN	415844	320931	Employment	Near Certain	101
East Staffs District	46390	P/2019/01270	Land at the corner of Old Knotty Way Uttoxeter Staffordshire	409454	333157	Employment	Near Certain	272
East Staffs District	46349	P/2020/00050	R S P C A Animal Sanctuary Hillfield Lane Stretton Staffordshire DE13 0BN	425834	326376	Employment	Reasonably foreseeable	546
East Staffs District	46461	P/2020/01243	All Saints C. E. Primary School Tatenhill Lane Rangemore Burton upon	418114	322940	Employment	Reasonably foreseeable	62

Local Plan Name	Site Ref	Application no	Address	Easting	Northing	Property type	Uncertainty	No. of jobs
			Trent Staffordshire DE13 9RW					
East Staffs District	46472	P/2021/00076	John Taylor High School Dunstall Road Barton Under Needwood DE13 8AZ	418982	318626	Employment	More than likely	90
East Staffs District	45237	P/2020/00304	Land Adjacent Uttoxeter Household Waste Centre Robert Bakewell Way Uttoxeter Staffordshire ST14 5AU	409365	334635	Employment	More than likely	569
East Staffs District	46731	P/2020/01153	Crestchic Limited Second Avenue Burton upon Trent Staffordshire DE14 2WF	422423	322223	Employment	Near Certain	68
East Staffs District	46732	P/2020/01275	Unilever Best Foods Uk Ltd Marmite Production Wellington Road Burton Upon Trent DE14 2AB	423364	322678	Employment	More than likely	95
East Staffs District	46734	P/2020/01448	Vacant Land at Lancaster Park Newborough Road Needwood Staffordshire DE13 9PD	415947	324787	Employment	Near Certain	52
East Staffs District	45947	P/2021/00186	Rear of Anglesey House Crown Industrial Estate Anglesey Road Burton Upon Trent DE14 3NX	423889	322728	Employment	More than likely	44
East Staffs District	46776	P/2021/01040	Hanbury Wedding Barn Parsons Brake Farm Burton Road Hanbury DE13 8TN	415881	326128	Employment	0	206
East Staffs District	46781	P/2021/01163	The New Inn Horninglow Road North Burton Upon Trent Staffordshire	424261	324994	Mixed-Use	Near Certain	53
East Staffs District	46789	P/2021/00680	Land at Manor Golf Club Stafford Road Gratwich Staffordshire	404936	330291	Employment	Near Certain	191
East Staffs District	46798	P/2019/01385	Holiday Inn Express Second Avenue Centrum 100 Burton Upon Trent DE14 2WF	422410	322041	Employment	Near Certain	110
East Staffs District		P/2013/00429	Major Sustainable Urban Extension_SP7. Adopted	422772.2	325481.7	Mixed-Use	0	109

Local Plan Name	Site Ref	Application no	Address	Easting	Northing	Property type	Uncertainty	No. of jobs
			Local Plan 2012-2031 (Beamhill)					
East Staffs District		P/2018/00530	Housing Strategic Site_SP4, SP11 & SP12. Adopted Local Plan 2012-2031 (Brookside Rd)	409663.2	333398.9	Employment	Near Certain	111
Lichfield	Drayton Manor Theme Park	16/00134/OUTM& 19/00885/REMM	Drayton Manor Theme Park, Drayton Manor Drive, Fazeley	419161	301247	Retail & Leisure	Reasonably foreseeable	28
Lichfield	David Lloyd Leisure Ltd	19/01035/FULM	David Lloyd Clubs, Birmingham Road, Wall	411138	306092	Retail & Leisure	Near Certain	53
Lichfield	Cher Varya Group Ltd	17/00016/FULM	Land to the North-west of Broad Lane, Huddlesford, Lichfield	415183	310361	Retail & Leisure	Reasonably foreseeable	189
Lichfield	42090	23/01014/FUL	Burntwood Business Park Zone 1, Unit 9 Attwood Road Burntwood Staffordshire WS7 3GJ	403844.7	309390.9	Employment	More than likely	133
Lichfield	42084	Not Available	City Wharf, Lichfield	411940	309141.2	Employment	Reasonably foreseeable	90
Lichfield	42036	-	Britania Way, Lichfield	413675.8	309803.3	Employment	Reasonably foreseeable	90
Lichfield	42085	-	Wellington Crescent, Fradley	415031.7	311861	Employment	Reasonably foreseeable	75
Lichfield	-	19/00536/FULM	Land To the Rear of Unit 20 Burntwood Business Park Robins Road Burntwood Staffordshire	404259.1	309148.6	Employment	Near Certain	29
Lichfield	42086	-	Wellington Crescent, Fradley	414948.4	311775.5	Employment	Reasonably foreseeable	78
Lichfield	42087	-	Wellington Crescent, Fradley	414904.9	311708.5	Employment	Reasonably foreseeable	58
Lichfield	42058	07/00083/OUTM	GKN Sinter Metals Trent Valley Road Lichfield Staffordshire	413457.2	309921.9	Employment	Reasonably foreseeable	467
Lichfield	42089	-	Wood End Lane, Fradley	414158.7	312372.4	Employment	Reasonably foreseeable	288
Lichfield	-	-	BBP Zone 4, Burntwood	404261.6	308618.7	Employment	Reasonably foreseeable	115
Lichfield	-	-	Land at Hilliard's Cross, Fradley	415074.3	311697.9	Employment	Reasonably foreseeable	365
Lichfield	-	-	Wellington Crescent Fradley	414826.7	311571.5	Employment	Reasonably foreseeable	569

Local Plan Name	Site Ref	Application no	Address	Easting	Northing	Property type	Uncertainty	No. of jobs
Lichfield	42055	17/00276/FULM	Land North East Of Wood End Lane Fradley Lichfield Staffordshire WS13 8NG	414415.4	312398.4	Employment	Reasonably foreseeable	315
Lichfield	42038	-	Halifax Close, Fradley	414448.8	312739	Employment	Near Certain	66
Lichfield	42035	14/00799	Burton Old Road, Lichfield	414054.9	309974.6	Employment	Near Certain	940
Lichfield	-	21/00514/FULM	Trent Valley Industrial Estate, Eastern Avenue	412023.4	311527.8	Employment	Near Certain	22
Lichfield	42077	12/00600/COU	Britannia Way, Europa Business Park, Lichfield	413764.4	309595.3	Employment	Near Certain	10
Lichfield	-	21/00817/FUL	Colton Road, Rugeley	404786.9	319236	Employment	Near Certain	7
Lichfield	-	21/01992/FULM	Unit 9, Burntwood Business Park Zone 1, Burntwood	403443.6	309395.8	Employment	Near Certain	16
Lichfield	-	-	A38	416900.8	313757.1	Employment	Near Certain	9
Lichfield	-	19/00033/FULM	Whittington Heath, Lichfield	415428.7	306703	Employment	Near Certain	300
Lichfield	-		Shaw Lane, Rileyhill	411608.9	314956.2	Employment	Near Certain	12
Lichfield	42133	14/00395	Land at Lichfield South, Business Park	411177.7	306298.4	Employment	Near Certain	1041
Lichfield	-	-	BBP Zone 3, Burntwood	403857.9	308871.8	Employment	Near Certain	94
Lichfield	-	-	Cricket Lane, Lichfield	412604.7	307705.8	Employment	Reasonably foreseeable	733
Lichfield			Burntwood Business Park Zone 1, Burntwood	403347.8	309363.7	Employment	Reasonably foreseeable	1
Sandwell	EMP1-1		Whitehall Road, Tipton	398212.6	292005.6	Employment	Reasonably foreseeable	728
Sandwell	EMP1-2		British Gas, Land off Dudley Rd, Oldbury (2949)	398501.2	289862.6	Employment	Reasonably foreseeable	145
Sandwell	EMP1-3		Junction Two, Oldbury	398698.3	288234.7	Employment	Reasonably foreseeable	154
Sandwell	EMP1-5		Coneygre Business Park (open land)	395808.4	291269.3	Employment	Near Certain	997
Sandwell	EMP1-7		Site off Bilport Lane, Wednesbury	398575.1	294032.5	Employment	Reasonably foreseeable	727
Sandwell	EMP1-8		Legacy 43, Ryder Street, West Bromwich	398456.7	292226.6	Employment	More than likely	121
Sandwell	EMP1-9		Roway Lane, Oldbury (Call for Sites)	398734	290050.1	Employment	More than likely	501
Sandwell	EMP1-6		Brandon Way/ Albion Road	399188.3	290614.4	Employment	Near Certain	422

Local Plan Name	Site Ref	Application no	Address	Easting	Northing	Property type	Uncertainty	No. of jobs
Sandwell	371		Vaughan Trading Estate	396796	291220	Employment	Near Certain	270
Sandwell	7423		Vaughan Trading Estate	396715	291323	Employment	Near Certain	175
Sandwell	7441		Masterfreight Limited	398810	290303	Employment	Near Certain	165
Sandwell	7439		200 Rood End Road	399920	289021	Employment	Near Certain	43
Sandwell	7074		G W S Trading Estate	397688	294214	Employment	Near Certain	209
Sandwell	7204		Brandrick Commercials	398528	287243	Employment	Near Certain	13
Sandwell	7165		James W Shenton Limited	398040	292316	Employment	Near Certain	104
Sandwell	6714		James Watt Industrial Park	403184	288742	Employment	Near Certain	8
Sandwell	7350		Bishopgate Works	397770	290285	Employment	Near Certain	2
Sandwell	171		Evans Halshaw car showroom	399818	291896	Mixed-Use	Reasonably foreseeable	184
Sandwell	173		Army Reserve, Carters Green	399754	291745	Mixed-Use	Reasonably foreseeable	242
Sandwell	176		Cultural Quarter, West Brom	400229	291354	Mixed-Use	Reasonably foreseeable	225
Sandwell	177		Queens Square Living	400708	291091	Mixed-Use	Reasonably foreseeable	587
Sandwell	178		West Bromwich Central	400605	290973	Mixed-Use	Reasonably foreseeable	794
Sandwell	199		Lion Farm	398120	288506	Mixed-Use	Reasonably foreseeable	413
Sandwell			West Brom Central Mixed Use Area Zone 1	400607	291017	Employment	0	750
Sandwell			Queens Square Living Zone 2	400714	291106	Employment	0	171
South Staffs District	i54 western extension (south)	Planning app ref 18/00637/OUT	i54 western extension (south)	389751	303923	Employment	Near Certain	1500
South Staffs District	i54 western extension (north)	Allocated site with no planning application. Size review by 0.4 plot ratio	i54 western extension (north)	389913	304264	Employment	Reasonably foreseeable	1405
South Staffs District	i54 (plot E)- Barberry	Planning app ref 05/01311/OUT. Reserved matters (22/00700/REM) subsequently	i54 (plot E)- Barberry	390829	304183	Employment	Near Certain	207

Local Plan Name	Site Ref	Application no	Address	Easting	Northing	Property type	Uncertainty	No. of jobs
		granted October 2023						
South Staffs District	i54 (plot D/F)	Planning app ref 05/01311/OUT. This is the remaining plots from the original outline.	i54 (plot D/F)	390867	304064	Employment	Reasonably foreseeable	204
South Staffs District	ROF Featherstone	Planning app ref 20/01131/OUT subsequently granted October 2022	ROF Featherstone	392631	304803	Employment	Near Certain	3000
South Staffs District	West Midlands Interchange	DCO Granted May 2021	West Midlands Interchange	391986	309628	Employment	Near Certain	8550
South Staffs District	Hilton Cross	Planning app ref 20/01078/FUL. Granted August 2021	Hilton Cross	393760	304280	Employment	Near Certain	283
South Staffs District	Vernon Park	Planning app ref 21/00948/FUL. Granted April 2022	Vernon Park	394154	304307	Employment	Near Certain	178
South Staffs District	Range Farm, Watling Street, Four Crosses	Planning app ref: 21/00021/COU	Range Farm, Watling Street, Four Crosses	395775	309450	Employment	Near Certain	30
South Staffs District	Lidl		Lidl	385639	292207	Retail & Leisure	Near Certain	33
Stafford Borough		19/30585/FUL	HUNTERS ROW GAOLGATE PLACE STAFFORD STAFFORDSHIRE	392057	323486	Employment	Reasonably foreseeable	81
Stafford Borough		19/30916/FUL	THE OLD RAILWAY STATION SANDON BANK SANDON STAFFORD STAFFORDSHIRE ST18 0DJ	394662	329277	Employment	Near Certain	87
Stafford Borough		20/31862/OUT	LAND WEST OF RALEIGH HALL INDUSTRIAL ESTATE	383232	330954	Employment	Near Certain	829

Local Plan Name	Site Ref	Application no	Address	Easting	Northing	Property type	Uncertainty	No. of jobs
Stafford Borough		20/33588/FUL	PLOT 10 LAND ADJ BEACON BUSINESS PARK WESTON ROAD STAFFORD STAFFORDSHIRE ST18 0GA	394608	324705	Employment	Near Certain	68
Stafford Borough		20/33137/FUL	LAND OFF A34 NORTH AT REDHILL STONE ROAD REDHILL STAFFORD STAFFORDSHIRE	390644	326822	Employment	Near Certain	3367
Stafford Borough			Ladfordfields Rural Employment Area	386100	326069	Employment	Reasonably foreseeable	1261
Stafford Borough		Western SDL - Employment Allocation	Western SDL - Employment Allocation	391386	323131	Employment	Reasonably foreseeable	478
Stafford Borough			Beacon Business Park	394953	324221	Employment	Reasonably foreseeable	1699
Walsall	IN0005.1 (WAE005)		North of Maybrook/ Clayhanger Road, Brownhills	404767.9	304555.9	Employment	Near Certain	127
Walsall	IN0084 (WAE084)		Central Point, Willenhall Road, Darlaston	397553.3	297945	Employment	More than likely	278
Walsall	IN0056.2 (WAE056)		Adj to Middletons, Bescot Crescent	400794.5	296220.4	Employment	More than likely	72
Walsall	IN0093.2 (WAE093)		Axcess 10 Business Park, Land adjacent Unit 401, Bentley Road South	398651.3	297912.8	Employment	More than likely	172
Walsall	IN0012.6 (WAE014)		Former Jack Allen Site, South of Middlemore Lane, Aldridge	405065.9	300654.6	Employment	More than likely	312
Walsall	IN0012.5 (WAE012)		Former Aldridge Rail Sidings, Middlemore Lane, Aldridge	405069.2	300597.8	Employment	More than likely	360
Walsall	IN0072.2 (WAE072)		Rear of Assa Abloy, School Street, Willenhall	395329.5	298534.6	Employment	More than likely	373
Walsall	IN0104.1 (WAE104)		Former IMI Works, Pleck (Phoenix 10 Site A - part)	399446.6	297745.4	Employment	Near Certain	1575
Walsall	IN0012.8 (WAE021)		McKechnie Brass, Middlemore Lane, Aldridge	404939.9	300801.8	Employment	More than likely	544
Walsall	IN0009.14 (WAE009)		LAND CORNER OF NORTHGATE/	405224.3	302439.7	Employment	More than likely	103

Local Plan Name	Site Ref	Application no	Address	Easting	Northing	Property type	Uncertainty	No. of jobs
			LONGLEAT ROAD, ALDRIDGE					
Walsall	IN0032.2 (WAE032)		Former Scrap Yard, Alma Street, Walsall	400594.2	299648.1	Employment	More than likely	85
Walsall	IN0103.2 (WAE103)		Former IMI South of Canal, Darlaston Road, Pleck (Phoenix 10 Site A - Part)	399203.5	297738.8	Employment	Near Certain	140
Walsall	IN0070.4 (WAE075)		Land rear of Guardian Lock and 47 Wednesfield Road, Willenhall	395993.4	299276.6	Employment	More than likely	65
Walsall	IN0069.3 (WAE065)		Adjacent Rainbow Business Park, Stringes Lane, Willenhall	397150.9	299202.6	Employment	More than likely	75
Walsall	IN0317 (WAE317)		Millers Close, Bentley Mill Way	398924.1	298019	Employment	More than likely	137
Walsall	IN0110 (WAE110)		James Bridge Gasholders Site, Darlaston Road, Walsall	399115.1	297227.8	Employment	More than likely	1370
Walsall	IN0010.2 (WAE010)		Adjacent Shaylors, Anchor Industrial Park, Wharf Approach, Aldridge	404758.8	301162.1	Employment	Near Certain	158
Walsall	IN0333 (WAE333)		Willenhall Sewage Works	397902.2	298334.2	Employment	More than likely	1483
Walsall	IN0099.2 (WAE099)		Heath Road / Kendricks Road, Darlaston	398547.6	297430.7	Employment	More than likely	165
Walsall	IN0017.2 (WAE024)		Fryers Road, Bloxwich	399453.1	301464.1	Employment	More than likely	637
Walsall	IN0009.12 (WAE004)		Former Scrapyard, North of Joberns Tip, Coppice Lane, Walsall Wood	405056.9	302433	Employment	More than likely	318
Walsall	IN0069.42 (WAE069)		Former Ductile, Charles Street, Willenhall	397236.1	299354.9	Employment	More than likely	432
Walsall	IN0071.2 (WAE071)		North of Watery Lane, Willenhall	395172.7	299291.4	Employment	More than likely	105
Walsall	IN0104.4 (WAE106)		North of IMI, Pleck (Phoenix 10 Site B)	399302	297977.5	Employment	Near Certain	863
Walsall	IN0205 (WAE205)		Bentley Mill Way East (Phoenix 10 Site C)	399057.6	297909.7	Employment	Near Certain	400
Walsall	IN0002.1 (WAE002)		Pelsall Road/ Bullows Road, Brownhills	403474.7	304987.9	Employment	More than likely	129
Walsall	IN0118.2 (WAE118)		Rear of Woods Bank Trading Estate, Woden Road West, Darlaston	397708.7	295896.9	Employment	More than likely	79

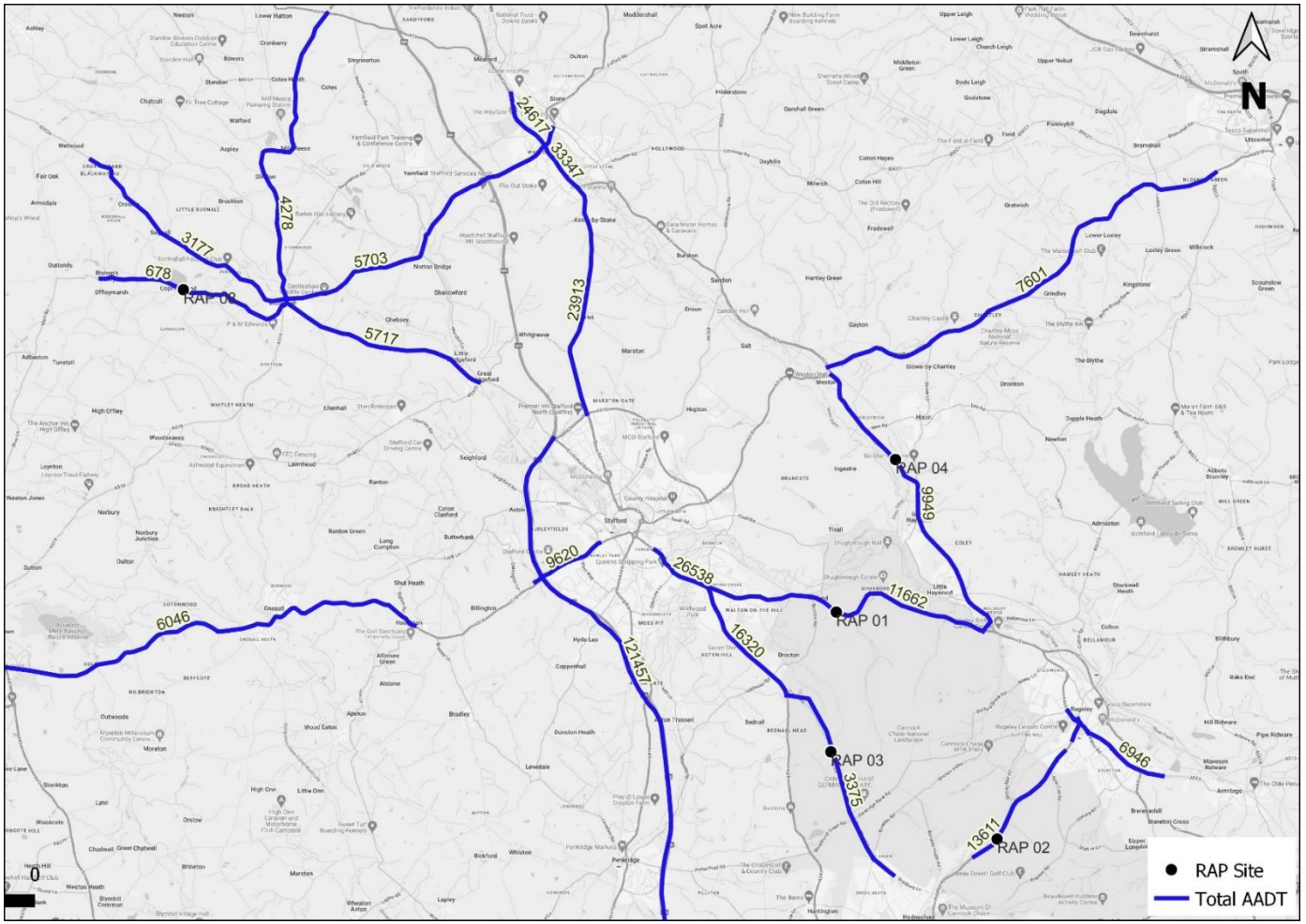
Local Plan Name	Site Ref	Application no	Address	Easting	Northing	Property type	Uncertainty	No. of jobs
Walsall	IN0078.2 (WAE078)		North of Westacre, Willenhall	395854.4	298206	Employment	More than likely	55
Walsall	IN0027.1 (WAE027)		Former Calor Gas Site fronting Green Lane, Walsall	400242.8	300683.7	Employment	More than likely	87
Walsall	IN0027.2 (WAE041)		North of Newfield Close, Walsall	400506	300608.8	Employment	More than likely	126
Walsall	IN0315 (WAE315)		Casino and Cinema, Bentley Mill Way	399010.7	298054.2	Employment	Near Certain	393
Walsall	IN0341 (WAE341)		Hughes Road, Moxley	396310.6	296301.5	Employment	More than likely	375
Walsall	IN0122 (WAE122)		Former Moxley Tip, Moxley Road	396787.2	296116.1	Employment	More than likely	890
Walsall	IN0105 (WAE105)		Rear of Globe Pub, Darlaston Road, Walsall	399048	297628.4	Employment	Near Certain	248
Walsall	IN0309 (WAE309)		Broadwalk Retail Park, Bescot Crescent, Walsall	400633.9	296586.2	Employment	More than likely	559
Walsall	IN0404 - CFS269 (WAE404)		Land South of Bentley Lane	398801.4	299992.5	Employment	More than likely	962
Walsall	WAE413 (WAE413)		HOLIDAY INN,WOLVERHAMPTON ROAD WEST,WALSALL,WS2 0BS	399001.8	298803.5	Employment	More than likely	190
Walsall	IN0063 (WAE063)		Tempus 10 North (Land East of KFC, Tempus Drive)	399421	298673	Employment	More than likely	293
Wolverhampton	3d		Banana Yard	391862	298908	Retail & Leisure	Reasonably foreseeable	117
Wolverhampton	WOE737		Bilston Urban Village	395261	296121	Employment	Reasonably foreseeable	411
Wolverhampton	8b		Broad Street Car Park	391750.6	298930.2	Retail & Leisure	Reasonably foreseeable	78
Wolverhampton	WOE761		Chillington Fields	393170.7	298314.7	Employment	Reasonably foreseeable	62
Wolverhampton	WOE681		Cross Street North	391807.8	299714.9	Employment	More than likely	288
Wolverhampton	WOE763		Dale St, adj Debs Diner (Fmr Starr Rd Transport Depot)	396003	296195	Employment	Reasonably foreseeable	110
Wolverhampton	WOE662		Fmr MEB site, Major Street	392703	297327	Employment	Reasonably foreseeable	250

Local Plan Name	Site Ref	Application no	Address	Easting	Northing	Property type	Uncertainty	No. of jobs
Wolverhampton	WOE754		Hickman Avenue	393094	298111.2	Employment	Reasonably foreseeable	72
Wolverhampton	WOE757		Inverclyde Drive	392842.2	296108.7	Employment	Reasonably foreseeable	51
Wolverhampton	WOE694		Land Behind Keyline Builders Merchants Limited, Neachells Lane / Noose Lane	394939	298576	Employment	Reasonably foreseeable	150
Wolverhampton	WOE760		Land Rear of Spring Road	393052.8	295985.9	Employment	Reasonably foreseeable	92
Wolverhampton	WOE658		Millfields Road, Ettingshall	393373	296518	Employment	Reasonably foreseeable	80
Wolverhampton	WOE703		Neachells Lane	394684	298496	Employment	Reasonably foreseeable	450
Wolverhampton	WOE698		Pheonix Road	394945	299588	Employment	More than likely	154
Wolverhampton	WOE759		Powerhouse, Commercial Road	391839.7	298548	Employment	Reasonably foreseeable	92
Wolverhampton	WOE684		Rear of IMI	391235.9	303703	Employment	More than likely	740
Wolverhampton	WOE755		Rolls Royce Playing Field	393098.4	296172.6	Employment	More than likely	185
Wolverhampton	WOE690		Shaw Road/Bushbury Lane	391739.6	301195.5	Employment	Reasonably foreseeable	82
Wolverhampton	WOE735		South of Citadel Junction	396387.1	296429	Employment	Reasonably foreseeable	308
Wolverhampton	WOE734		Springvale Avenue	393913.3	295768.5	Employment	Reasonably foreseeable	72
Wolverhampton	9a		St Georges Parade	391832.9	298266.1	Retail & Leisure	Reasonably foreseeable	49
Wolverhampton	WOE758		Strykers, Bushbury Lane	391439	300892	Employment	Reasonably foreseeable	40
Wolverhampton	WOE618		Tata Steel	394989	299743	Employment	More than likely	350
Wolverhampton	2		Westside	391096	298311	Retail & Leisure	Reasonably foreseeable	428
Wolverhampton	WOE723		WSP Gas Holders	391800.1	300436	Employment	More than likely	267
Wolverhampton	WOE727		WSP Mammoth Drive	391451.6	300641.2	Employment	Reasonably foreseeable	82
Wolverhampton	WOE726		WSP Stratosphere	391503	300362.7	Employment	Reasonably foreseeable	41

Local Plan Name	Site Ref	Application no	Address	Easting	Northing	Property type	Uncertainty	No. of jobs
Wolverhampton	1580	20/01580/FUL	Fmr Buzz Bingo, Bushbury Lane	391703.7	301455.3	Employment	0	32

Appendix C: Traffic Forecast Differential Plots

Absolute Volume Plots for Do Nothing (2024)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RAP 04
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9620
26538
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RAP 01
6046
16320
121457
RAP 03
3375
6946
13611
RAP 02
0
RAP Site
Total AADT


N
31758
5060
7566
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RAP 11
11164
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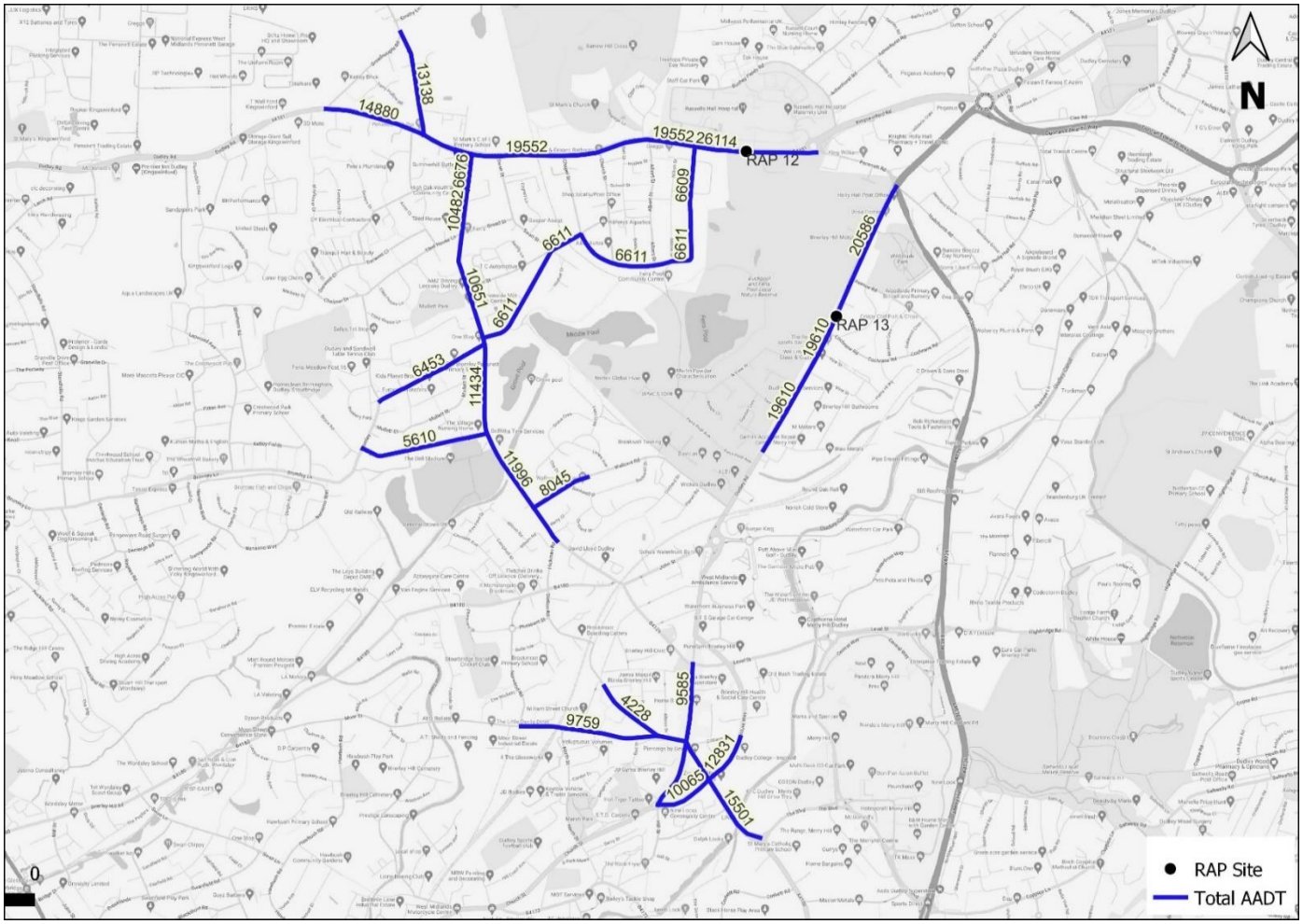
RAP Site
Total AADT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6611
20586
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6611
RAP 13
19610
19610
6453
11434
5610
11996
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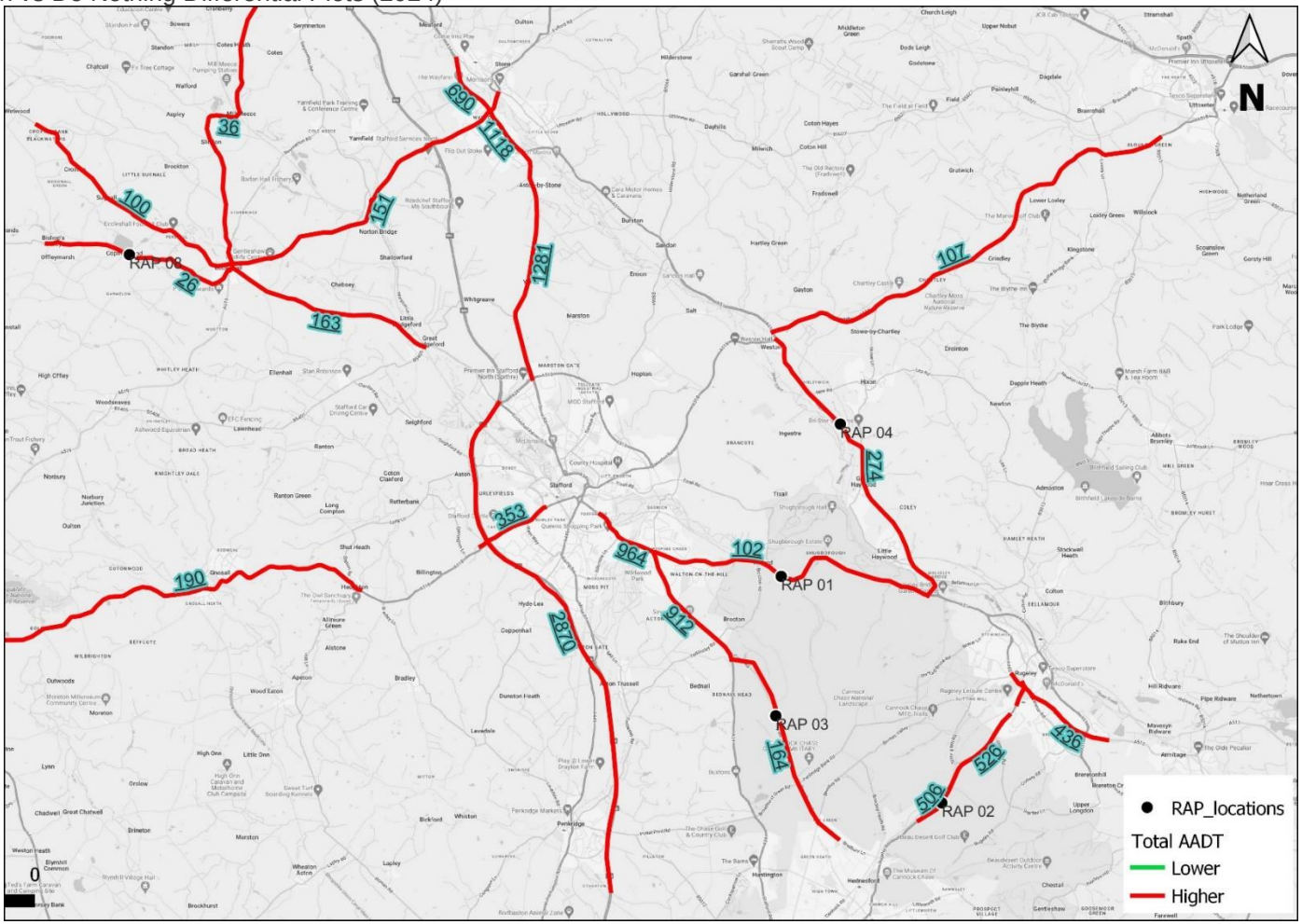
15501
0
N
RAP Site
Total AADT

In combination vs Do Nothing Differential Plots (2024)

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846
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RAP 11
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Total AADT
Lower
Higher
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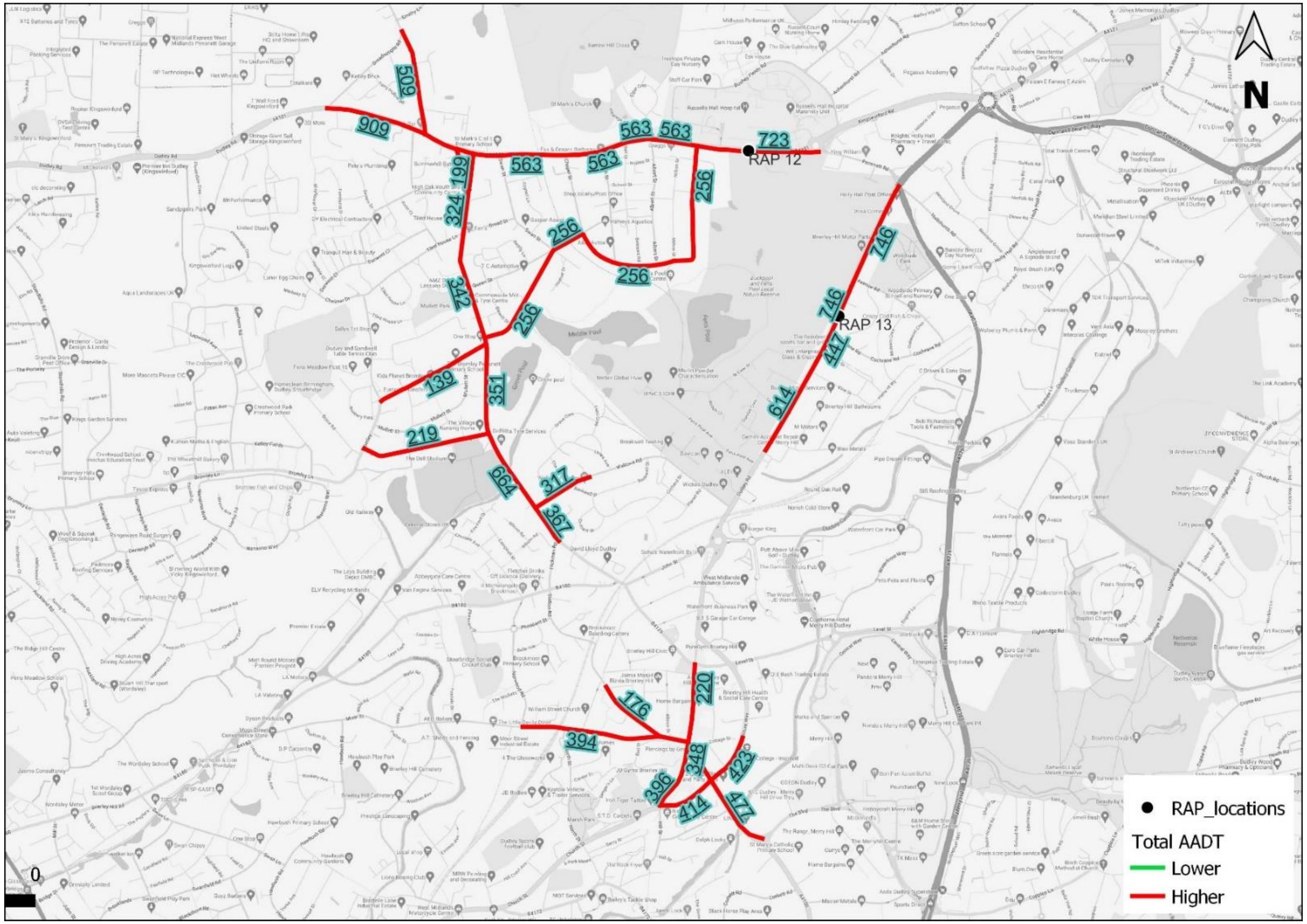

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563
563
563
723
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199
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256
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256
256
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746
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447
614
139
351
219
664
317
367
220
176
394
348
423
396
414
477
0
RAP_locations
Total AADT
Lower
Higher

Appendix D: Traffic Forecast Results for Air Quality Modelling

FROM NODE	TO NODE	Base Year Total	Base Year Car	Base Year HGV	Base Year HGV%	Do Nothing Total	Do Nothing Car	Do Nothing HGV	Do Nothing HGV%	In Combination Total	In Combination Car	In Combination HGV	In Combination HGV%
101537	101548	12,175	10,858	128	1.05	12,943	11,264	133	1.03	13,348	11,668	133	1.00
101512	101516	6,247	5,364	142	2.27	6,676	5,565	147	2.2	6,876	5,764	147	2.14
101058	101060	10,126	8,793	482	4.76	10,720	9,111	501	4.68	11,087	9,479	501	4.52
101057	101058	6,721	6,076	326	4.84	7,060	6,306	339	4.8	7,304	6,550	339	4.64
102911	105358	6,082	4,899	134	2.2	6,833	5,330	139	2.04	7,238	5,735	139	1.92
102890	102911	15,625	12,867	363	2.32	16,715	13,224	378	2.26	18,840	15,364	378	2.01
102855	102890	19,590	16,589	292	1.49	20,634	16,846	304	1.47	22,418	18,710	304	1.36
102666	107910	9,258	8,674	306	3.3	9,692	9,013	318	3.28	10,538	9,859	318	3.02
102212	102675	9,128	6,541	739	8.1	9,949	6,778	769	7.73	10,222	7,051	769	7.52
101887	102675	10,529	8,789	223	2.12	11,662	9,458	233	2	11,825	9,623	234	1.98
101494	101529	22,085	17,113	1,089	4.93	23,913	17,733	1,133	4.74	25,195	18,902	1,133	4.50
101424	101494	30,909	24,140	1,795	5.81	33,347	25,014	1,867	5.6	34,465	26,024	1,867	5.42
101424	101440	13,307	10,941	370	2.78	14,358	11,379	385	2.68	14,774	11,795	385	2.61
101351	101424	22,683	17,249	1,284	5.66	24,617	17,874	1,349	5.48	25,307	18,595	1,317	5.20
101058	101424	5,313	3,932	693	13.04	5,703	4,074	734	12.87	5,854	4,239	721	12.32
101060	101293	5,106	3,871	187	3.66	5,717	4,113	194	3.4	5,880	4,323	194	3.30
101057	101098	3,841	2,677	296	7.71	4,278	2,847	303	7.09	4,314	2,877	308	7.14
101489	107227	12,255	10,936	92	0.75	13,138	11,448	95	0.72	13,647	11,957	95	0.70
101478	107217	5,918	5,245	68	1.15	6,453	5,596	71	1.09	6,592	5,734	71	1.08
107217	107219	10,717	9,418	96	0.89	11,434	9,771	100	0.87	11,785	10,121	100	0.85
101509	101512	9,864	8,726	192	1.95	10,482	9,053	200	1.91	10,807	9,378	200	1.85
101463	101489	13,984	12,205	364	2.6	14,880	12,662	379	2.55	15,789	13,572	379	2.40
101519	107217	16,233	14,663	164	1.01	17,208	15,212	168	0.97	17,757	15,758	170	0.96
101537	107219	11,237	9,807	144	1.28	11,996	10,174	150	1.25	12,663	10,838	150	1.18
107218	107219	5,245	4,710	58	1.1	5,610	4,930	60	1.07	5,830	5,150	60	1.03

FROM NODE	TO NODE	Base Year Total	Base Year Car	Base Year HGV	Base Year HGV%	Do Nothing Total	Do Nothing Car	Do Nothing HGV	Do Nothing HGV%	In Combination Total	In Combination Car	In Combination HGV	In Combination HGV%
102666	108013	16,259	14,150	219	1.35	17,386	14,702	228	1.31	18,766	16,082	228	1.21
107909	108012	28,912	22,392	4,207	14.55	30,639	23,266	4,366	14.25	32,790	25,450	4,333	13.21
102666	108012	28,834	22,377	4,015	13.92	30,600	23,250	4,176	13.65	32,783	25,433	4,176	12.74
102704	108013	10,841	10,613	184	1.69	11,164	10,916	191	1.71	12,381	12,010	191	1.54
108013	108014	11,300	9,723	261	2.31	12,180	10,197	272	2.23	13,365	11,382	272	2.04
109642	108964	23,357	17,750	2,417	10.35	24,930	18,269	2,514	10.08	26,228	19,568	2,514	9.59
101594	110060	9,515	8,563	90	0.94	10,065	8,884	93	0.93	10,479	9,203	93	0.89
101519	110607	10,064	9,172	95	0.94	10,651	9,515	99	0.93	10,891	9,857	99	0.91
101509	110607	10,208	9,027	207	2.03	10,847	9,365	216	1.99	11,183	9,701	216	1.93
101583	111234	3,993	3,781	21	0.53	4,228	3,958	22	0.52	4,404	4,134	22	0.50
101612	111235	9,716	9,350	39	0.4	10,166	9,700	41	0.4	10,514	10,048	41	0.39
101594	111235	10,854	10,633	12	0.11	11,316	11,031	13	0.11	11,712	11,427	13	0.11
101619	113158	24,372	20,107	1,030	4.23	26,114	20,859	1,084	4.15	26,823	21,611	1,071	3.99
110060	113992	14,504	12,593	155	1.07	15,501	13,064	161	1.04	15,977	13,533	161	1.01
102666	114315	27,863	21,427	4,207	15.1	29,578	22,263	4,418	14.94	31,687	24,352	4,437	14.00
107909	115403	28,996	18,693	3,915	13.5	31,758	19,422	4,031	12.69	33,578	21,246	4,028	12.00
109641	109617	20,372	15,635	2,063	10.13	21,714	16,093	2,146	9.88	22,858	17,236	2,146	9.39
101519	513072	6,169	5,491	69	1.11	6,611	5,748	71	1.08	6,867	6,003	71	1.03
101609	513085	6,169	5,491	69	1.11	6,611	5,748	71	1.08	6,867	6,003	71	1.03
513072	513085	6,169	5,491	69	1.11	6,611	5,748	71	1.08	6,867	6,003	71	1.03
101516	513084	18,304	15,392	779	4.26	19,552	15,968	810	4.14	20,125	16,541	810	4.02
101619	513086	18,304	15,392	779	4.26	19,552	15,968	810	4.14	20,125	16,541	810	4.02
513084	520411	18,304	15,392	779	4.26	19,552	15,968	810	4.14	20,125	16,541	810	4.02
513086	520411	18,304	15,392	779	4.26	19,552	15,968	810	4.14	20,125	16,541	810	4.02
101537	514545	7,558	7,003	59	0.78	8,045	7,340	62	0.76	8,362	7,657	61	0.73
107909	514987	7,084	6,078	220	3.11	7,566	6,315	229	3.02	8,159	6,908	229	2.81
514883	514987	4,738	4,052	162	3.41	5,060	4,210	168	3.32	5,455	4,605	168	3.08

FROM NODE	TO NODE	Base Year Total	Base Year Car	Base Year HGV	Base Year HGV%	Do Nothing Total	Do Nothing Car	Do Nothing HGV	Do Nothing HGV%	In Combination Total	In Combination Car	In Combination HGV	In Combination HGV%
101505	514544	21,244	18,911	476	2.24	22,630	19,619	495	2.19	23,232	20,323	495	2.13
101516	514544	21,244	18,911	476	2.24	22,528	19,619	495	2.2	23,232	20,323	495	2.13
100896	515077	5,631	4,439	381	6.77	6,046	4,600	392	6.49	6,236	4,785	396	6.35
101583	521124	9,902	9,378	126	1.27	10,466	9,817	131	1.25	10,902	10,253	131	1.20
101612	521124	9,902	9,378	126	1.27	10,466	9,817	131	1.25	10,902	10,253	131	1.20
110399	514326	12,161	9,609	469	3.86	13,611	10,402	488	3.58	14,117	10,921	488	3.46
105357	512070	11,746	8,425	352	3	13,275	9,049	366	2.76	13,801	9,575	366	2.65
512070	512072	11,746	8,425	352	3	13,275	9,049	366	2.76	13,801	9,575	366	2.65
512072	514990	13,657	10,122	407	2.98	14,911	10,459	424	2.84	16,121	11,504	424	2.63
101609	513082	6,169	5,491	69	1.11	6,611	5,748	71	1.08	6,867	6,003	71	1.03
101612	521126	7,702	7,330	49	0.64	8,075	7,604	51	0.64	8,348	7,877	51	0.61
110060	521126	8,140	7,330	49	0.61	8,644	7,604	51	0.59	8,917	7,877	51	0.57
102911	515095	8,948	6,740	287	3.21	9,782	7,069	298	3.05	10,933	8,137	298	2.73
102890	514328	11,746	8,425	352	3	13,275	9,049	366	2.76	13,801	9,575	366	2.65
514328	520765	11,746	8,425	352	3	13,275	9,049	366	2.76	13,801	9,575	366	2.65
514327	520765	11,746	8,425	352	3	13,275	9,049	366	2.76	13,801	9,575	366	2.65
102890	512064	5,957	4,264	221	3.71	6,573	4,431	230	3.5	6,989	4,847	230	3.29
110340	513027	18,581	17,117	285	1.53	19,610	17,781	296	1.51	20,629	18,228	296	1.43
513026	513027	18,581	17,117	285	1.53	19,610	17,781	296	1.51	20,629	18,395	296	1.43
101710	513028	19,525	17,833	441	2.26	20,586	18,500	458	2.23	21,556	19,246	458	2.12
110340	513028	19,525	17,833	441	2.26	20,586	18,500	458	2.23	21,331	19,246	458	2.15
515133	515135	25,198	22,085	442	1.75	27,313	23,381	460	1.68	28,229	24,220	460	1.63
101887	515132	24,471	21,199	478	1.95	26,538	22,409	497	1.87	27,502	23,313	497	1.81
515132	515133	24,538	22,085	442	1.8	26,412	23,338	460	1.74	26,882	23,809	460	1.71
110411	512028	5,006	4,276	77	1.54	5,390	4,489	80	1.49	5,837	4,719	80	1.37
512026	512027	5,051	4,276	77	1.52	5,476	4,489	80	1.46	6,167	4,903	80	1.30
512027	512028	5,051	4,276	77	1.52	5,476	4,489	80	1.46	6,167	4,903	80	1.30

FROM NODE	TO NODE	Base Year Total	Base Year Car	Base Year HGV	Base Year HGV%	Do Nothing Total	Do Nothing Car	Do Nothing HGV	Do Nothing HGV%	In Combination Total	In Combination Car	In Combination HGV	In Combination HGV%
101489	513083	20,076	17,361	537	2.68	21,448	18,058	559	2.6	22,047	18,657	559	2.54
101505	513083	20,076	17,361	537	2.68	21,448	18,058	559	2.6	22,047	18,657	559	2.54
514543	101505	5,855	5,336	56	0.95	6,246	5,586	58	0.93	6,494	5,834	58	0.89
101512	514543	5,855	5,336	56	0.95	6,246	5,586	58	0.93	6,494	5,834	58	0.89
101619	514575	6,169	5,491	69	1.11	6,611	5,748	71	1.08	6,867	6,003	71	1.03
101612	513043	9,509	8,485	98	1.03	10,019	8,714	102	1.01	10,250	8,945	102	1.00
101617	513043	9,141	8,608	108	1.18	9,585	8,920	112	1.17	9,804	9,140	112	1.14
514326	514993	13,047	9,609	469	3.59	14,657	10,233	488	3.33	15,269	10,921	488	3.20
514990	514993	13,047	9,609	469	3.59	14,657	10,233	488	3.33	15,269	10,921	488	3.20
107910	520644	4,738	4,052	162	3.41	5,060	4,210	168	3.32	5,455	4,605	168	3.08
514883	520644	4,738	4,052	162	3.41	5,060	4,210	168	3.32	5,455	4,605	168	3.08
513029	513082	6,167	5,491	69	1.11	6,609	5,748	71	1.08	6,866	6,003	73	1.06
513029	514575	6,167	5,491	69	1.11	6,609	5,748	71	1.08	6,866	6,003	73	1.06
105357	515094	10,705	8,425	352	3.29	11,888	9,049	366	3.08	12,448	9,575	366	2.94
105358	515064	6,169	4,899	134	2.17	6,946	5,330	139	2.01	7,382	5,735	139	1.88
515064	515127	6,082	4,899	134	2.2	6,822	5,319	139	2.04	7,238	5,735	139	1.92
513015	5100222	9,182	8,468	129	1.41	9,759	8,864	134	1.38	10,153	9,258	134	1.32
101583	5100222	9,182	8,468	129	1.41	9,759	8,864	134	1.38	10,153	9,258	134	1.32
101887	5100228	15,063	13,281	139	0.92	16,320	14,039	145	0.89	17,232	14,951	145	0.84
110411	5100228	3,224	3,134	69	2.15	3,375	3,275	72	2.14	3,539	3,439	72	2.03
101060	5100231	4,770	4,089	108	2.27	5,125	4,268	113	2.2	5,265	4,408	113	2.15
5100230	5100231	652	611	31	4.78	678	633	32	4.78	704	659	32	4.55
101057	5100234	2,953	2,386	126	4.27	3,177	2,472	131	4.12	3,277	2,572	131	4.00
101444	109596	117,328	91,499	23,483	20.01	121,457	93,984	24,422	20.11	124,327	96,854	24,422	19.64
110060	1000215	12,057	10,775	83	0.69	12,831	11,178	86	0.67	13,255	11,580	86	0.65
105355	515138	8,719	7,088	247	2.83	9,620	7,564	257	2.67	9,972	7,916	257	2.58
102206	103258	7,066	5,114	687	9.72	7,601	5,306	714	9.4	7,709	5,346	718	9.31

FROM NODE	TO NODE	Base Year Total	Base Year Car	Base Year HGV	Base Year HGV%	Do Nothing Total	Do Nothing Car	Do Nothing HGV	Do Nothing HGV%	In Combination Total	In Combination Car	In Combination HGV	In Combination HGV%
100775	100940	128,747	99,776	26,396	20.5	135,828	104,903	27,645	20.35	135,934	104,903	27,722	20.39

Assessment of Air Quality Impacts on European Sites in Staffordshire, Wolverhampton, Walsall, Sandwell, and Dudley

Air Quality Assessment Report

Sweco UK Limited	Reg. No. 2888385
Project Name	Staffordshire HRA: Traffic & Air Quality
Project Number	65209859
Client	Partnership Authorities
Author	Lee Shelton
Controlled by	Damian Pawson
Approved by	Damian Pawson
Date	2024-10-25
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Version	Date	Description of the change	Reviewed	Approved by
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1 Introduction

Sweco UK Ltd was commissioned by South Staffordshire District Council (SSDC), on behalf of a partnership of local authorities, to undertake a detailed air quality modelling study to inform an assessment of air quality impacts on relevant European designated sites.

The partnership authorities comprise:

- SSDC
- Stafford Borough Council
- East Staffordshire Borough Council
- Lichfield District Council
- Cannock Chase District Council
- City of Wolverhampton Council
- Dudley Metropolitan Borough Council
- Walsall Metropolitan Borough Council
- Sandwell Metropolitan Borough Council

At the time of assessment (February – October 2024), a number of the partnership authorities are progressing their respective Local Plans, which will direct development throughout the region.

The *Conservation of Habitats and Species Regulations 2017* (as amended) require local authorities to assess whether their Local Plan will result in likely significant effects to European designated sites in and/or near to their administrative areas. The task is achieved by means of a Habitats Regulations Assessment (HRA).

Each Local Plan will generate additional vehicle movements on the local and regional road networks resulting from the development of current and proposed allocated sites. Therefore, vehicle emissions associated with traffic generated by each partnership authority's emerging Local Plan have the potential to impact sensitive habitats within a number of European sites, both 'alone' (i.e. individual Local Plan) and 'in-combination' (i.e. multiple Plans and projects).

Of key concern for European sites are vehicle emissions of nitrogen-containing compounds, such as oxides of nitrogen (NO_x) and ammonia (NH_3), which can contribute to ambient concentrations at nitrogen-sensitive habitats or species within a designated site. Increased emissions of these pollutants can, in turn, increase nutrient nitrogen deposition and/or acid deposition to plants and soils within a designated site, which can have detrimental impacts on flora and fauna. As such, the change in vehicle emissions of NO_x and NH_3 associated with the aforementioned emerging Local Plans form the focus of this assessment.

1.1 Purpose of this Assessment

This study has been commissioned to facilitate an 'in-combination' assessment of air quality impacts at relevant European sites, such that it can be used to support each partnership authority's Local Plan HRA. However, it is acknowledged that updates to this assessment may be required in future as each partnership Local Plan emerges, as dictated by changes to the respective Local Plan periods, site allocations, development mix, and any associated changes to traffic growth and distribution.

The designated sites that form the focus of this air quality assessment were determined through an evidence base and specification developed by Middlemarch Environmental Ltd (March

2023)[1], which included rationales for screening out a number of sites from the HRA process. This was agreed in writing with Natural England[2].

The European designated sites included in this air quality assessment comprise:

- Cannock Chase Special Area of Conservation (SAC)
- Pasturefields Salt Marsh SAC
- Midlands Meres and Mosses Phase 2 Ramsar site (Cop Mere & Oakhanger Moss)
- Cannock Extension Canal SAC
- Fens Pools SAC.

The above European site locations are presented in **Figure 1**.

This air quality assessment has been completed with reference to the specification outlined by Middlemarch Environmental Ltd[1], as detailed herein. Furthermore, this assessment has relied upon the traffic data produced by the appointed transport modelling consultant (Sweco UK Ltd) for the partnership authorities[3], which includes the relevant road links within 200 m of each European site scoped into the assessment.

The results of this assessment have been passed to the appointed ecology consultants for each partnership authority, such that an Appropriate Assessment can be undertaken to determine the likely impacts on the integrity of a European site, where applicable.

This technical air quality assessment report is supported by the following appendices:

- **Appendix A** – Traffic Data Tables (base year and future year scenarios)
- **Appendix B** – Dispersion Modelling Approach & Verification
- **Appendix C** – Air Quality Assessment Results Tables
- **Appendix D** – Middlemarch Environmental Ltd (March 2023) *Creation of an Air Pollution Evidence Base Brief to Support Local Plan HRA*
- **Appendix E** – Letter from Natural England (14 April 2023) to Partnership Authorities confirming agreement with Middlemarch Environmental Ltd evidence base brief

[1] Middlemarch Environmental Ltd (March 2023) *Creation of an Air Pollution Evidence Base Brief to Support Local Plan HRA* (Report no. RT-MME-159172-01,Rev B)

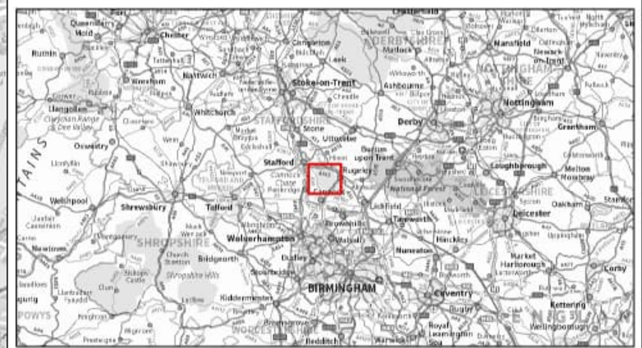
[2] Natural England (14 April 2023) Letter addressed to 'Combined Partnership Authorities' via email, confirming agreement with rationale for screening out certain European sites from requiring detailed air quality impact assessment (Natural England reference: 427535)

[3] Sweco UK Ltd (July 2024) *Traffic modelling to inform an assessment of air quality impacts on European sites in Staffordshire, Wolverhampton, Walsall, Sandwell, and Dudley – Traffic Model Validation and Forecast*

Legend

Designated Nature Conservation Sites

- Site of Special Scientific Interest (SSSI)
- Special Area of Conservation (SAC)



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SWECO

Client

South Staffordshire Council

Project Title

Assessment of Air Quality Impacts on European Sites in Staffordshire, Wolverhampton, Walsall, Sandwell, and Dudley

Drawing Title

Figure 1.1 Location of European sites included in the Air Quality Assessment to inform the HRA

Cannock Chase SAC/SSSI

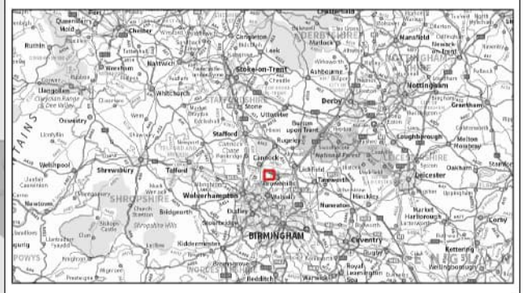
Project Stage			
n/a			
Status	Status Description		
n/a	n/a		
Drawn	Designed	Checked	Approved
LFS	LFS	DP	DP
Sheet Size	Scale	Sweco Ref	Revision
A3	1:27,500	65209859	P01.1

Drawing Number 65209859-SWE-XX-XX-D-AQ-0001

Legend

Designated Nature Conservation Sites

- Site of Special Scientific Interest (SSSI)
- Special Area of Conservation (SAC)



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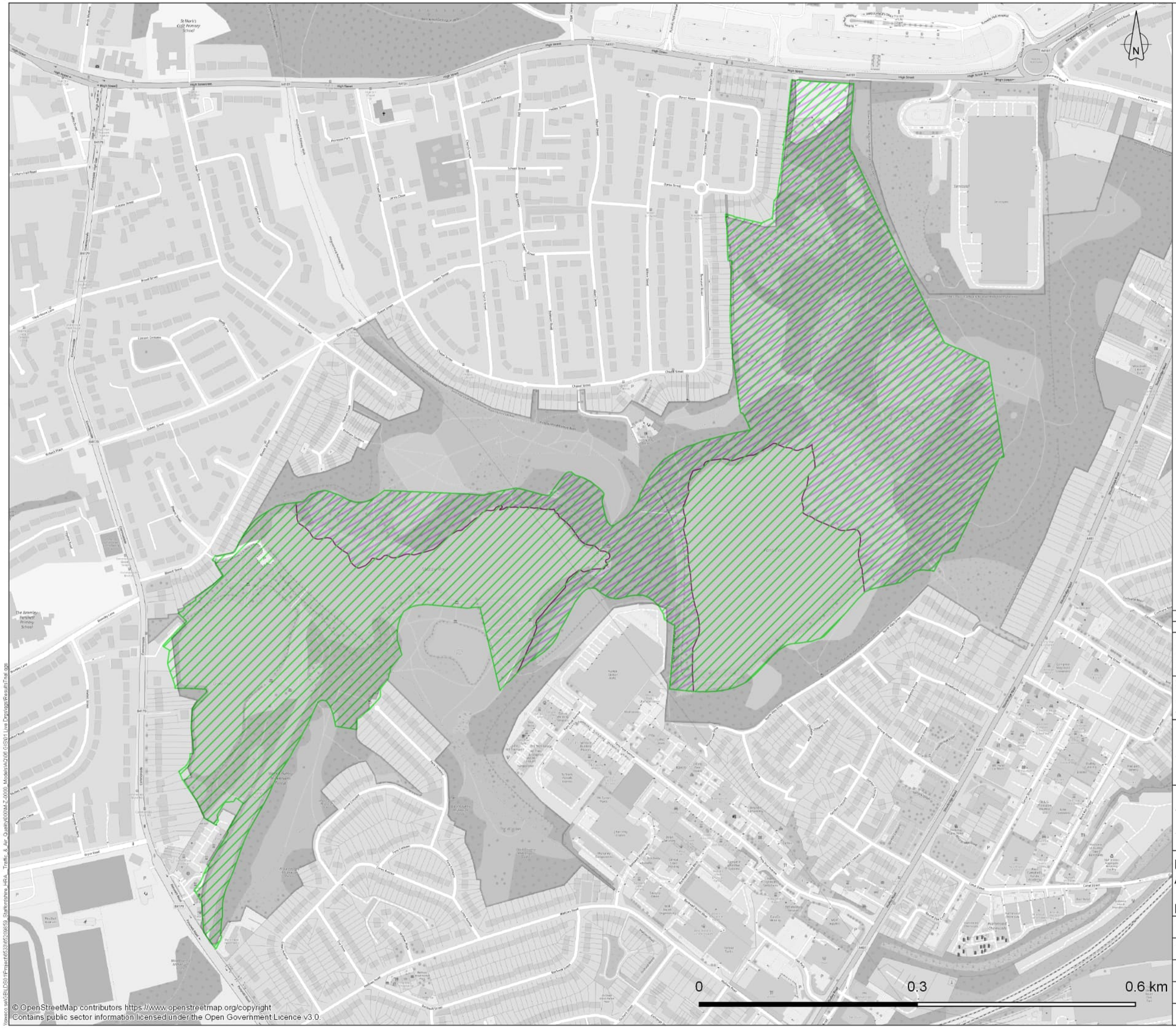
Drawing Title

Figure 1.2 Location of European sites included in the Air Quality Assessment to inform the HRA

Cannock Extension Canal SAC/SSSI

Project Stage			
n/a			
Status: n/a	Status Description: n/a		
Drawn: LFS	Designed: LFS	Checked: DP	Approved: DP
Sheet Size: A3	Scale: 1:6,000	Sweco Ref: 65209859	Revision: P01.1

Drawing Number: 65209859-SWE-XX-XX-D-AQ-0001



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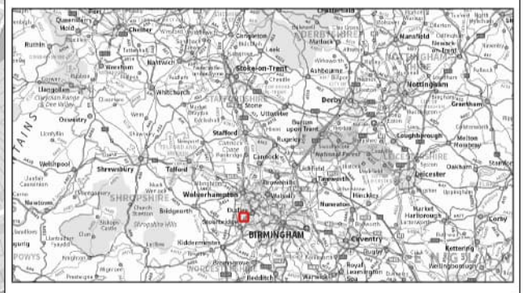
Designated Nature Conservation Sites

- Site of Special Scientific Interest (SSSI)
- Special Area of Conservation (SAC)



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Drawing Title

Figure 1.3 Location of European sites included in the Air Quality Assessment to inform the HRA

Fens Pools SAC/SSSI

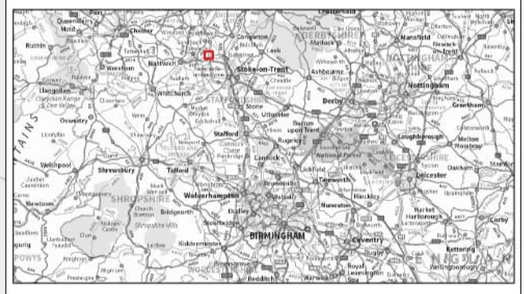
Project Stage			
n/a			
Status: n/a	Status Description: n/a		
Drawn: LFS	Designed: LFS	Checked: DP	Approved: DP
Sheet Size: A3	Scale: 1:5,000	Sweco Ref: 65209859	Revision: P01.1

Drawing Number: 65209859-SWE-XX-XX-D-AQ-0001

Legend

Designated Nature Conservation Sites

- Site of Special Scientific Interest (SSSI)
- Wetland of International Importance (Ramsar)



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Assessment of Air Quality Impacts on European Sites in Staffordshire, Wolverhampton, Walsall, Sandwell, and Dudley

Drawing Title

Figure 1.4 Location of European sites included in the Air Quality Assessment to inform the HRA

Oakhanger Moss SSSI (Ramsar)

Project Stage			
n/a			
Status: n/a	Status Description: n/a		
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Sheet Size: A3	Scale: 1:4,000	Sweco Ref: 65209859	Revision: P01.1

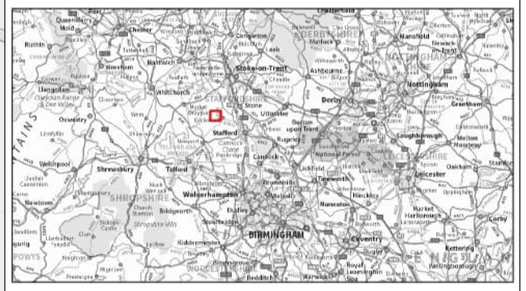
Drawing Number: 65209859-SWE-XX-XX-D-AQ-0001

0 0.2 0.4 km

Legend

Designated Nature Conservation Sites

- Site of Special Scientific Interest (SSSI)
- Wetland of International Importance (Ramsar)



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Project Title

Assessment of Air Quality Impacts on European Sites in Staffordshire, Wolverhampton, Walsall, Sandwell, and Dudley

Drawing Title

Figure 1.5 Location of European sites included in the Air Quality Assessment to inform the HRA

Cop Mere SSSI (Ramsar)

Project Stage			
n/a			
Status: n/a	Status Description: n/a		
Drawn: LFS	Designed: LFS	Checked: DP	Approved: DP
Sheet Size: A3	Scale: 1:7,000	Sweco Ref: 65209859	Revision: P01.1

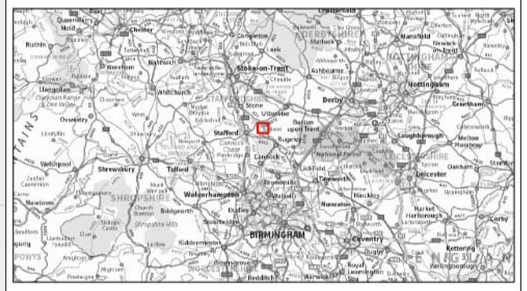
Drawing Number: 65209859-SWE-XX-XX-D-AQ-0001

0 0.4 0.8 km

Legend

Designated Nature Conservation Sites

- Site of Special Scientific Interest (SSSI)
- Special Area of Conservation (SAC)



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Client

South Staffordshire Council

Project Title

Assessment of Air Quality Impacts on European Sites in Staffordshire, Wolverhampton, Walsall, Sandwell, and Dudley

Drawing Title

Figure 1.6 Location of European sites included in the Air Quality Assessment to inform the HRA

Pasturefields Salt Marsh SAC/SSSI

Project Stage			
n/a			
Status: n/a	Status Description: n/a		
Drawn: LFS	Designed: LFS	Checked: DP	Approved: DP
Sheet Size: A3	Scale: 1:7,500	Sweco Ref: 65209859	Revision: P01.1
Drawing Number: 65209859-SWE-XX-XX-D-AQ-0001			

0 0.4 0.8 km

2 Legislation & National Planning Policy

This section provides a summary of the pertinent legislation and planning policies that apply to this assessment.

2.1 Legislation

2.1.1 The Conservation of Habitats and Species Regulations 2017 (as amended)

The *Conservation of Habitats and Species Regulations 2017* (as amended) ('Habitats Regulations'); Regulation 63 (1) states that:

'*A competent authority, before deciding to undertake, or give any consent, permission or other authorisation for, a plan or project which –*

(a) is likely to have a significant effect on a European site or a European offshore marine site (either alone or in-combination with other plans or projects), and

(b) is not directly connected with or necessary to the management of that site,

– must make an Appropriate Assessment of the implications for that site in view of that site's conservation objective.'

The Habitats Regulations also make allowance for projects or plans to be completed if they satisfy '*imperative reasons of overriding public interest (IROPI)*'. Regulations 64 and 68 apply in this regard.

2.1.2 National Air Quality Legislation

The *European Directive on Ambient Air Quality* (2008/50/EC) set legally binding limits (termed 'critical levels') for ambient concentrations of air pollutants that impact ecosystems, such as oxides of nitrogen (NO_x). Critical levels are concentrations of pollutants (e.g. in micrograms per cubic metre, µg/m^3) in the atmosphere below which direct adverse effects on receptors, such as human beings, plants, ecosystems or materials, are not expected to occur according to present knowledge.

The Directive and associated pollutant critical levels and limit values were transposed into UK law under the Air *Quality Standards Regulations 2010* (as amended) and, following the UK's exit from the EU, the *Environment (Legislative Functions from Directives) (EU Exit) Regulations 2019*.

The UK's Air Quality Strategy, published in July 2007 was superseded in England by the 2023 Air Quality Strategy[4] and fulfils the statutory requirement of the *Environment Act 1995* as amended by the *Environment Act 2021* to publish an Air Quality Strategy setting out air quality standards, objectives, and measures for improving ambient air quality every 5 years.

The Strategy establishes the framework for air quality improvements across the UK and sets out standards for key air pollutants that reflect levels of pollutants thought to avoid or minimise risks to health or ecosystems. The associated air quality objectives are policy targets, expressed as maximum permissible outdoor concentrations of pollutants that take account of economic efficiency, practicability, technical feasibility and timescales.

The Strategy reinforces the annual mean critical level for NO_x, as presented in **Table 1** below. It also acknowledges the potential for significant impacts associated with levels of NH_3, with both

[4] Department for Environment Food & Rural Affairs (Defra) *Air quality strategy: framework for local authority delivery 2023*

pollutants contributing to the deposition of reactive nitrogen and "…*the associated long-term decline of biodiversity in the UK*".

Whilst not explicitly provided in the Air Quality Strategy, critical levels for NH_3 are assigned for all vegetation types and established by the *Working Group on Effects of the UNECE Convention on Long Range Transboundary Air Pollution*[5]. The respective annual mean NH_3 critical level concentrations applicable to lower (lichens and bryophytes) and higher plants are provided in **Table 1**.

Similar benchmarks apply to nitrogen and acid deposition, termed as 'critical loads'. Critical loads define the rates of acid or nitrogen (N) deposition (e.g. in kiloequivalents per hectare per year, keq/ha/yr) below which significant harmful effects are not expected to occur in sensitive habitats. Critical loads for N deposition are set under the *Convention on Long Range Transboundary Air Pollution*[5], with critical loads for acidity derived using differing methods for terrestrial habitats and freshwater ecosystems[6]. Critical loads for both N and acid deposition are dependent on the specific habitat type, with N deposition critical loads given as ranges. The critical loads applicable to the European sites included in this assessment are presented in **Section 4**.

Table 1: Annual mean NO_x and NH_3 critical levels applicable to this assessment

Pollutant	Critical Level	Measured as	Applicable to
Oxides of Nitrogen, NO_x	30 µg/m^3	Annual Mean	Protection of vegetation and ecosystems
Ammonia, NH_3	3 µg/m^3	Annual Mean	Higher plants
Ammonia, NH_3	1 µg/m^3	Annual Mean	Lower plants (lichens & bryophytes)

2.2 National Planning Policy Context

The Government's overall planning policies for England are described in the National Planning Policy Framework[7]. The core underpinning principle of the Framework is the presumption in favour of sustainable development, which for 'plan-making' means that:

"…

a) *all plans should promote a sustainable pattern of development that seeks to: meet the development needs of their area; align growth and infrastructure; improve the environment; mitigate climate change (including by making effective use of land in urban areas) and adapt to its effects;*
b) *strategic policies should, as a minimum, provide for objectively assessed needs for housing and other uses, as well as any needs that cannot be met within neighbouring areas, unless:*
    i. the application of policies in this Framework that protect areas or assets of particular importance [including habitats sites] *provides a strong reason for restricting the overall scale, type or distribution of development in the plan area; or*

[5] United Nations Economic Commission for Europe (13 November 1979) *Convention on long-range transboundary air pollution*
[6] UK Centre for Ecology and Hydrology - Air Pollution Information System webpage: https://www.apis.ac.uk/critical-loads-and-critical-levels-guide-data-provided-apis#_Toc279788050 (accessed June 2024)
[7] Ministry of Housing, Communities & Local Government (December 2023) *National Planning Policy Framework*

ii. any adverse impacts of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies in this Framework taken as a whole..."

Paragraph 181 of the NPPF states, in relation to conserving and enhancing the natural environment, that "…*Plans should: distinguish between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework; take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries*…".

In relation to the above and specifically with regard to air quality, paragraph 180 states that "…*Planning policies and decisions should contribute to and enhance the natural and local environment by…e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality*…".

Notwithstanding, paragraph 188 of the NPPF asserts that "…*the presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in-combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site*".

For the purposes of this report, all relevant habitats sites as described above are collectively termed 'European sites'.

2.3 The Wealden Judgement

The Wealden Judgement[8], handed down in March 2017, introduced additional complexities into the HRA process in relation to in-combination and cumulative effects.

Prior to this Judgement, it was deemed that air quality impacts on European sites need only be considered alongside roads where the traffic growth associated with the individual Plan or Project being assessed exceeded specified screening criteria. These criteria were typically based on changes in vehicle movements and taken from the Design Manual for Roads and Bridges (DMRB, LA105)[9], equating to:

- Increases of over 1,000 domestic vehicles per day or 200 Heavy Goods Vehicles per day (as Annual Average Daily Traffic (AADT)).

The Wealden Judgement found that the application of the criteria to the traffic growth associated with a single Local Plan was unsound on the basis that two Local Plans collectively contributing more than 1,000 domestic AADT could lead to a potentially significant effect. The Judge determined that further assessment of air quality impacts on European sites should have been carried out and quashed part of the Local Plan that would have led to an in-combination exceedance of 1,000 domestic AADT.

This judgement poses several challenges for Local Authorities and Council Officers, namely:

- Uncertainty – at present, there is no widely accepted approach to the appropriate use of screening criteria and when these may be used to rule out the need for detailed modelling of potential air quality impacts. Natural England has published guidance which

[8] Judgment in Wealden District Council v. Secretary of State for Communities and Local Government, Lewes District Council and South Downs National Park Authority [2017] EWHC 351 (Admin) DATE: 21 Mar 2017.
[9] National Highways (2024) *Design Manual for Roads and Bridges LA105 Air Quality v0.1.0*

provides a staged approach for assessing in-combination effects. This methodology has been used as the basis for this air quality assessment, as outlined herein.

- Lack of a clear '*de minimus*' – there is case law that supports the use of *de minimus* thresholds in the assessment of potential impacts on European sites, i.e. where no 'appreciable effect' may occur[10] as the result of a Plan or Project. Some practitioners have argued that Wealden suggests there is no *de minimus* threshold for increases in traffic emissions, and a development leading to an increase of even one vehicle per day should be prohibited or subject to further assessment for in-combination traffic growth, whilst others have argued that the Wealden Judgement applies to the use of traffic thresholds alone.
- Difficulties devising and delivering local planning policy – where predicted Local Plan growth will result in increased vehicle emissions, it is more challenging to determine the appropriate scope of traffic modelling, air quality modelling and HRA work required in support.
- Difficulties assessing individual planning applications – how do Local Authorities determine planning applications that will increase vehicle movements in proximity to European sites whilst tracking cumulative growth.

[10] Sweetman v. An Bord Pleanála, Case C-258/11, CJEU judgment 11 April 2013

3 Scope & Methodology

This section provides details of the data and information supplied for the purpose of undertaking the air quality assessment. It also describes the adopted methodology for assessing and appraising the potential 'in-combination' air quality impacts associated with the Partnership Authorities' emerging Local Plans, which aligns with the Middlemarch Environmental Ltd brief[1], as agreed with Natural England[2].

3.1 Key Data & Resources

An index of the key data and resources used within this study and the respective sources are presented in **Table 2**.

Table 2: Key data and resources relating to air quality assessment

Data / Information	Description	Source / Document Reference
European site boundaries	Georeferenced shapefiles for each relevant European site were sourced from the Joint Nature Conservation Committee (JNCC), such that they could be accurately represented in the air quality model.	JNCC https://jncc.gov.uk/our-work/uk-protected-area-datasets-for-download/
Nitrogen dioxide (NO_2) and NH_3 monitoring data specific to project	Monitoring data (2022-23) at or near to relevant European sites were provided by Stafford Borough Council to inform the assessment of baseline air quality conditions.	Stafford Borough Council
NO_2 monitoring data from Partnership Authorities	To facilitate verification of the air quality model, local authority data pertaining to roadside annual mean NO_2 concentrations were sourced for relevant locations within the study area.	Various air quality Annual Status Reports (ASRs) published by the individual Partnership Authorities
N and acid deposition rates and critical loads	Respective baseline N deposition and acid deposition rates and empirical habitat critical loads	Middlemarch Environmental Ltd[1] and Air Pollution Information System (APIS) Website (http://www.apis.ac.uk/)
Defra national background pollutant mapping data (2018-based)	Background 1km x 1km grid pollutant data obtained for the respective grid squares encompassing the study area.	Annual mean data sourced from Defra: https://uk-air.defra.gov.uk/data/laqm-background-maps?year=2018
Defra EFT v12.0	Vehicle emissions factors toolkit allowing calculation of road link-based pollutant emissions rates (e.g. NO_x) for a specified year, road type, vehicle speed and vehicle fleet composition	https://laqm.defra.gov.uk/air-quality/air-quality-assessment/emissions-factors-toolkit/
Defra Local Air Quality Management (LAQM) Tools	A suite of tools to enable collation of vehicle emissions inventory data and conversion of NO_x to NO_2.	All LAQM tools sourced from Defra: https://laqm.defra.gov.uk/review-and-assessment/tools/tools.html
National Highways NH_3 Emissions from Vehicles Tool v4	A calculator tool that enables the derivation of road-NH_3 concentrations at a specified receptor based on a relationship between NO_x and NH_3 vehicle emissions for both light duty and heavy duty vehicles.	National Highways (Jan 2024) *Draft - Highways England Ammonia N Deposition Tool_v4*
Atmospheric Dispersion Modelling System for Roads v5.0.1 (ADMS-Roads)	Steady-state dispersion model capable of predicting dispersion of emissions from the assessed road network and calculating pollutant concentrations at receptors.	Cambridge Environmental Research Consultants (CERC)

Data / Information	Description	Source / Document Reference
Baseline and future year traffic data for all model scenarios	Traffic data provided in appropriate format to enable air pollutant emissions inventory (NO_x) databases to be generated prior to dispersion modelling,	Data supplied by project transport consultant (Sweco). Link-based traffic data applicable to the study area are provided in **Appendix A**.
Hourly sequential meteorological data	Data representative of study area obtained for year 2022 to align with model verification year and to facilitate dispersion modelling.	Formatted National Weather Prediction (NWP) hourly data suitable for use in ADMS 6 purchased from ADM Ltd
LAQM Technical Air Quality Guidance	Guidance document, including information on dispersion modelling and model verification / adjustment	Defra (2022) *Local Air Quality Management Technical Guidance*[11] (referred to as 'LAQM.TG22')
Natural England Guidance	Natural England guidance on assessment of road traffic emissions under the Habitats Regulations	*Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations*[12]
Institute of Air Quality Management (IAQM) Guidance	Guidance document for assessing the air quality impact on designated sites	IAQM (2019) *A Guide to the Assessment of Air Quality Impacts on Designated Nature Conservation Sites*[13]
Ordnance Survey (OS) MasterMap	Base mapping covering the model domain to facilitate model build of road network and accurate representation of modelled receptors.	OS MasterMap provided by Partnership Authorities under licence agreement (2023)
Terrain data	Light Detection and Ranging (LIDAR) data used at 2 m resolution was used to facilitate inclusion of terrain elevations within dispersion model.	Environment Agency LIDAR Composite Digital Terrain Model (DTM) elevation data (2022) https://environment.data.gov.uk/survey

3.2 Natural England's Guidance

In June 2018, Natural England published guidance[12] on their approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations. The document considers the Wealden Judgement and the need to assess in-combination effects on European sites as a result of air pollution.

The guidance provides a framework around the assessment of road traffic emissions and subsequent effects on International Sites. Notably:

- Step 1 – Does the proposal give rise to emissions which are likely to reach a Habitats Site.
- Step 2 – Are there qualifying features within 200 m of a road sensitive to air pollution.
- Step 3 – Could the sensitive qualifying features of the site be exposed to emissions.
- Step 4 – Application of the Screening Thresholds.
  - Step 4a: apply the threshold alone.
  - Step 4b: apply the threshold in-combination with emissions from other road traffic plans and projects.

[11] Defra (2022) *Local Air Quality Management Technical Guidance LAQM.TG22*

[12] Natural England (June 2018) *Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations*

[13] IAQM (2019) *A Guide to the Assessment of Air Quality Impacts on Designated Nature Conservation Sites. Version 1.0*

    - Step 4c: apply the threshold in-combination with emissions from other non-road plans and projects.
- Step 5: Advise on the need for Appropriate Assessment where thresholds are exceeded, either alone or in-combination.

The relevant thresholds in relation to Step 4 are as follows:

- Changes in AADT of 1,000 domestic vehicles a day (or more); and/or
- Changes of 1% of the relevant Critical Load and/or Level as a result of the Plan/Project.

The guidance does not specifically cover nationally significant sites such as Sites of Special Scientific Interest (SSSIs), which are covered by a different regulatory framework. However, it does state that the general principles for air quality assessment outlined for European sites are likely to be equally relevant for this and other designations.

The above guidance has been referenced throughout the completion of this air quality assessment, particularly with respect to the scenarios addressed. However, this assessment focusses on the in-combination impacts associated with the Partnership Authorities' emerging Local Plans and does not consider the individual 'alone' impact associated with each discrete Local Plan. This is consistent with the methodology agreed with Natural England[1,2].

3.3 Assessment Methodology

3.3.1 Study Area

The study area for the air quality assessment was determined through identifying the road links within 200 m of the relevant European sites as listed in **Section 1.1** and depicted in **Figure 1**. Primarily, the road links within 200 m encompassed the 'road assessment point' (RAP) locations identified by the Middlemarch brief[1], as presented in **Table 3**.

The full extent of the modelled road links and RAP locations within 200 m of each European site are depicted on **Figure 2**.

Table 3: RAP locations used to identify the key roads within 200 m of European sites

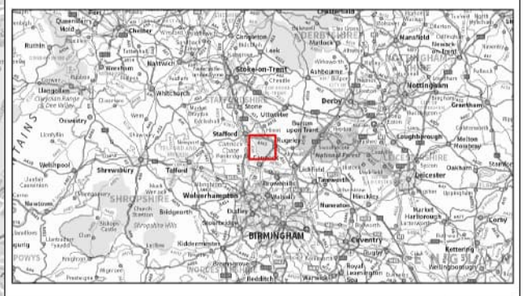
European Site	Land Parcel	Road Type	Road Name	OS Grid Reference	RAP Reference
Cannock Chase SAC	N/A	A	A513	397865, 320796	RAP 1
		A	A460 Rugeley Road	402164, 314732	RAP 2
		Unclassified	Camp Road	397719, 317062	RAP 3
Pasturefields Salt Marsh SAC	N/A	A	A51	399447, 324872	RAP 4
Midlands Meres and Mosses Phase 2 Ramsar	Cop Mere	Unclassified	Unnamed	380412, 329409	RAP 8
	Oakhanger Moss	Motorway	M6	377104, 355061	RAP 25
Cannock Extension Canal SAC	N/A	A	A5 Watling Street	402030, 306921	RAP 10
		B	B4154 Lime Lane	402006, 306291	RAP 11
Fens Pools SAC	N/A	A	A4101 High Street	392072, 289236	RAP 12
		A	A461 Stourbridge Road	392409, 288620	RAP 13

Legend

- Modelled Roads (HRA)
- RAP Locations
- Modelled Receptor Points

Designated Nature Conservation Sites

- Site of Special Scientific Interest (SSSI)
- Special Area of Conservation (SAC)



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06.11.2024		FIRST ISSUE	ABC	ABC	ABC

Sweco UK Limited
2nd Floor Quay 2, 139 Fountainbridge
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Tel: +44 (0)131 550 6300
www.sweco.co.uk

Client: South Staffordshire Council

Project Title: Assessment of Air Quality Impacts on European Sites in Staffordshire, Wolverhampton, Walsall, Sandwell, and Dudley

Drawing Title: Figure 2.1 Road links within 200 m of each European site included in assessment

Cannock Chase SAC/SSSI

Project Stage: n/a			
Status: n/a	Status Description: n/a		
Drawn: LFS	Designed: LFS	Checked: DP	Approved: DP
Sheet Size: A3	Scale: 1:27,500	Sweco Ref: 65209859	Revision: P01.1

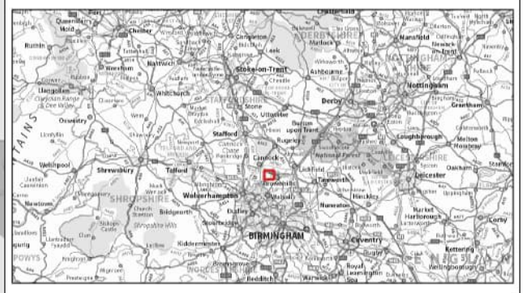
Drawing Number: 65209859-SWE-XX-XX-D-AQ-0002

Legend

- Modelled Roads (HRA)
- ⊕ RAP Locations
- · Modelled Receptor Points

Designated Nature Conservation Sites

- Site of Special Scientific Interest (SSSI)
- Special Area of Conservation (SAC)



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South Staffordshire Council

Project Title

Assessment of Air Quality Impacts on European Sites in Staffordshire, Wolverhampton, Walsall, Sandwell, and Dudley

Drawing Title

Figure 2.2 Road links within 200 m of each European site included in assessment

Cannock Extension Canal SAC/SSSI

Project Stage
n/a

Status	Status Description
n/a	n/a

Drawn	Designed	Checked	Approved
LFS	LFS	DP	DP
Sheet Size	Scale	Sweco Ref	Revision
A3	1:6,000	65209859	P01.1

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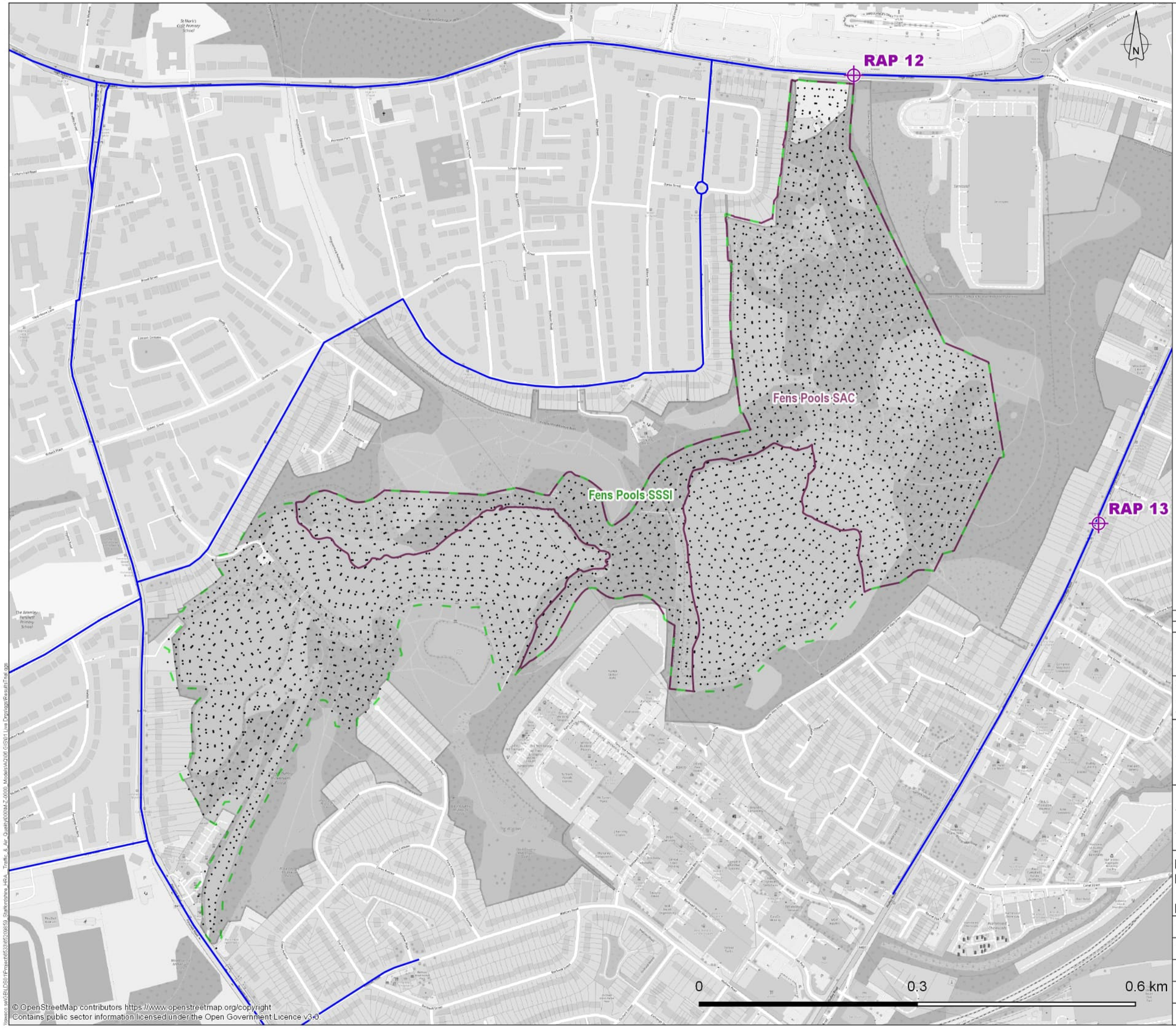
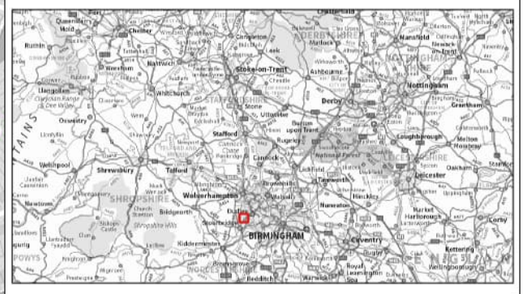


Legend

- Modelled Roads (HRA)
- RAP Locations
- Modelled Receptor Points

Designated Nature Conservation Sites

- Site of Special Scientific Interest (SSSI)
- Special Area of Conservation (SAC)



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Project Title

Assessment of Air Quality Impacts on European Sites in Staffordshire, Wolverhampton, Walsall, Sandwell, and Dudley

Drawing Title

Figure 2.3 Road links within 200 m of each European site included in assessment

Fens Pools SAC/SSSI

Project Stage: n/a			
Status: n/a	Status Description: n/a		
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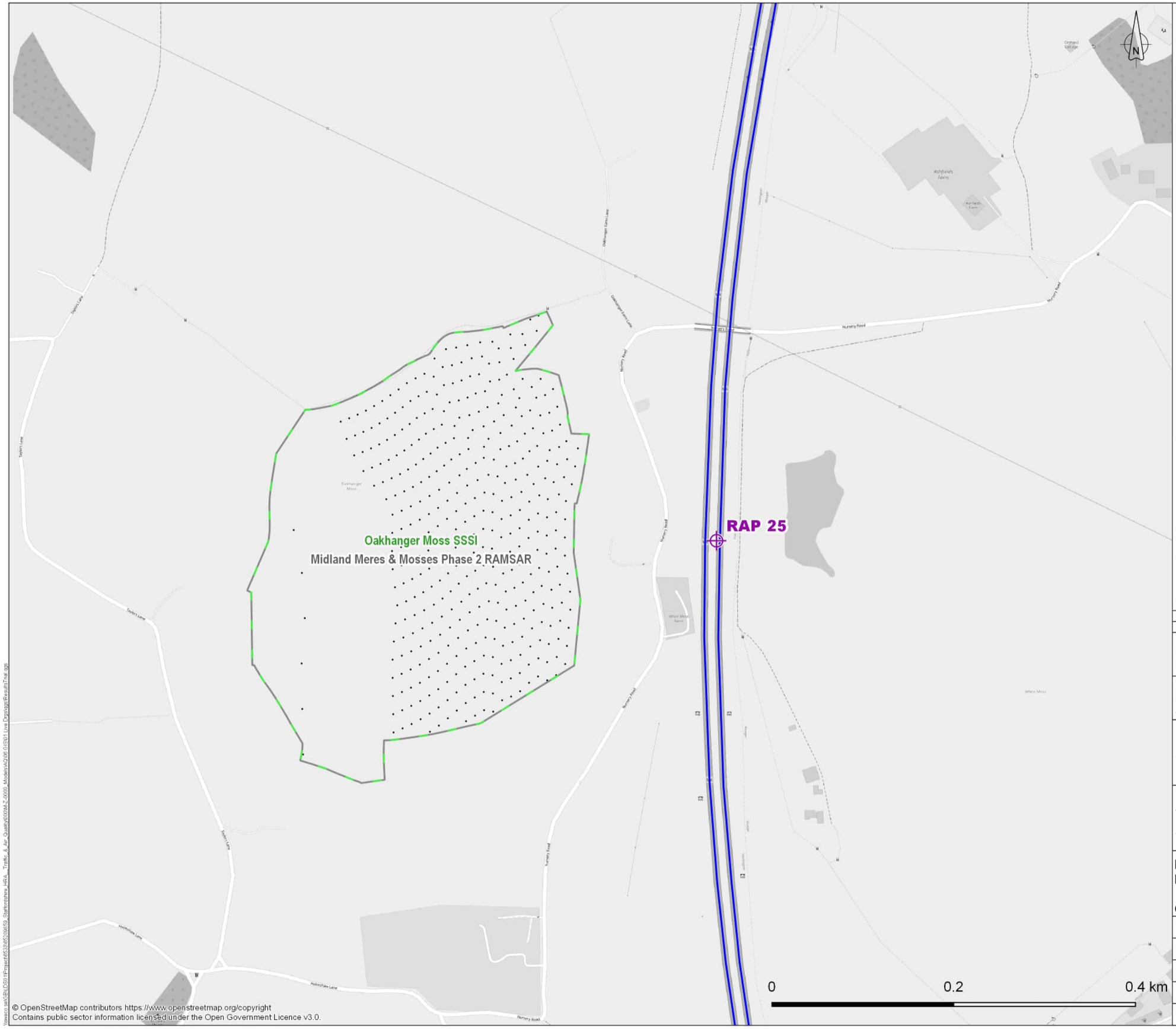
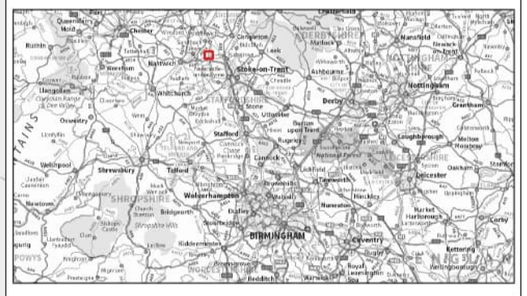


Legend

- Modelled Roads (HRA)
- RAP Locations
- Modelled Receptor Points

Designated Nature Conservation Sites

- Site of Special Scientific Interest (SSSI)
- Wetland of International Importance (Ramsar)



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Drawing Title

Figure 2.4 Road links within 200 m of each European site included in assessment

Oakhanger Moss SSSI (Ramsar)

Project Stage			
n/a			
Status: n/a	Status Description: n/a		
Drawn: LFS	Designed: LFS	Checked: DP	Approved: DP
Sheet Size: A3	Scale: 1:4,000	Sweco Ref: 65209859	Revision: P01.1

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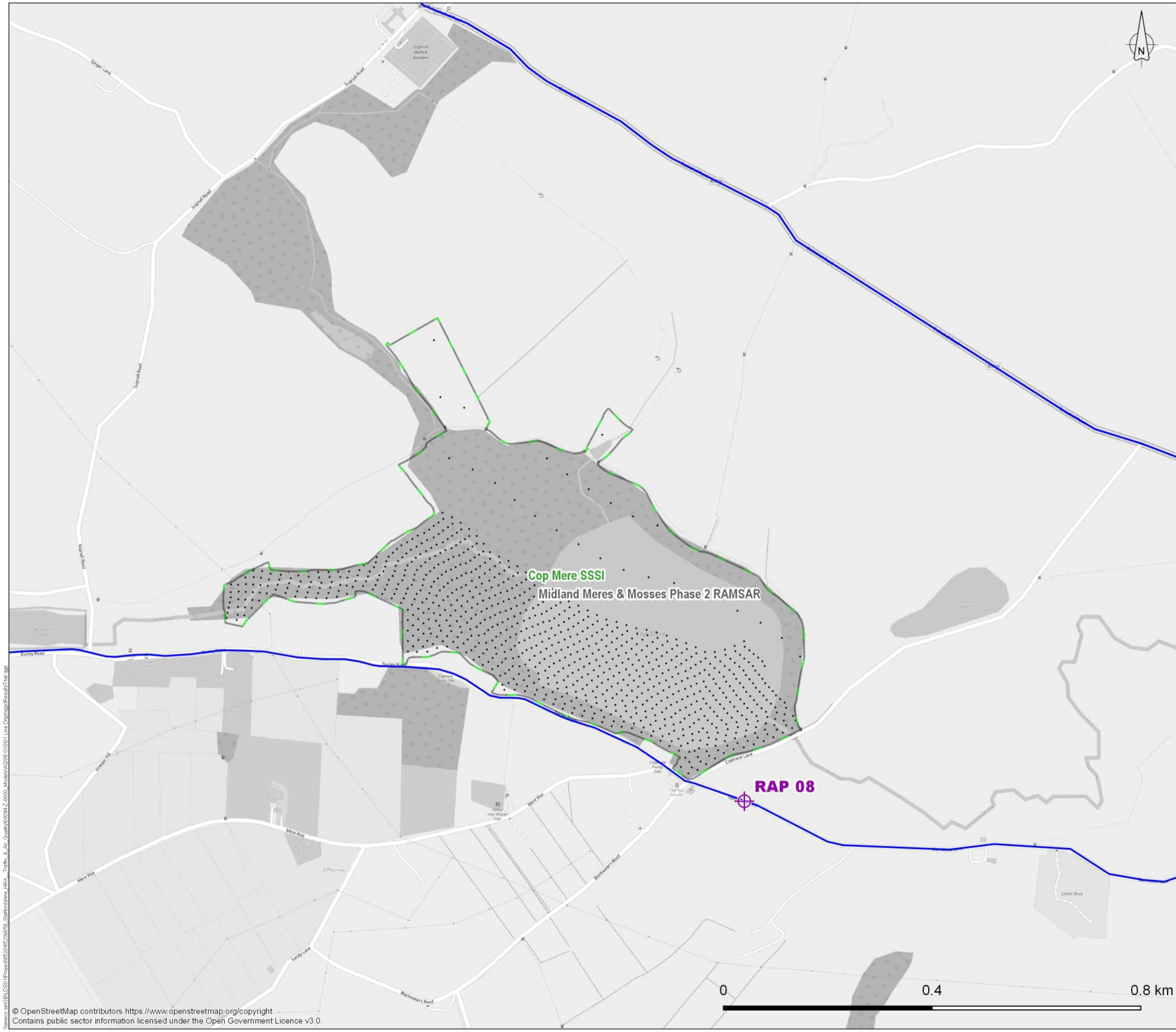

Legend

- Modelled Roads (HRA)
- RAP Locations
- Modelled Receptor Points

Designated Nature Conservation Sites

- Site of Special Scientific Interest (SSSI)
- Wetland of International Importance (Ramsar)

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Project Title

Assessment of Air Quality Impacts on European Sites in Staffordshire, Wolverhampton, Walsall, Sandwell, and Dudley

Drawing Title

Figure 2.5 Road links within 200 m of each European site included in assessment

Cop Mere SSSI (Ramsar)

Project Stage			
n/a			
Status	Status Description		
n/a	n/a		
Drawn	Designed	Checked	Approved
LFS	LFS	DP	DP
Sheet Size	Scale	Sweco Ref	Revision
A3	1:7,000	65209859	P01.1

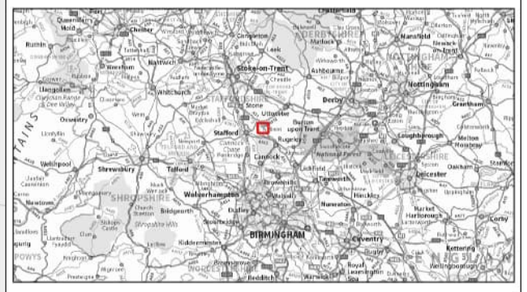
Drawing Number 65209859-SWE-XX-XX-D-AQ-0002

Legend

- Modelled Roads (HRA)
- RAP Locations
- Modelled Receptor Points

Designated Nature Conservation Sites

- Site of Special Scientific Interest (SSSI)
- Special Area of Conservation (SAC)



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Client: South Staffordshire Council

Project Title: Assessment of Air Quality Impacts on European Sites in Staffordshire, Wolverhampton, Walsall, Sandwell, and Dudley

Drawing Title: Figure 2.6 Road links within 200 m of each European site included in assessment

Pasturefields Salt Marsh SAC/SSSI

Project Stage: n/a			
Status: n/a	Status Description: n/a		
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Sheet Size: A3	Scale: 1:7,500	Sweco Ref: 65209859	Revision: P01.1
Drawing Number: 65209859-SWE-XX-XX-D-AQ-0002			

Receptor Selection

The modelled road network was used to determine where discrete receptors would be modelled within each assessed European site, in addition to assigning a receptor grid across each site to encompass a distance up to 1 km from the nearest road(s). These receptors represent the discrete points at which concentrations and deposition rates were modelled as part of the dispersion modelling study (see **Section 3.3.2**).

Where a road link was within 200 m of a European site, discrete receptors were modelled at 10 m intervals along the respective European site boundary and at 10 m intervals up to a distance of 200 m within the respective European site. This ensured detailed coverage of the main areas of interest within the designated sites that are closest to the RAP road links.

In some cases, where the scale of the European site allowed, additional receptors were added beyond the 200 m distance at larger intervals to facilitate the creation of concentration / deposition rate contour plots. These comprised rows of receptors perpendicular to the European site boundary at 50 m intervals, with each row separated by 100 m up to a maximum of 1 km from the boundary.

The modelled receptors within each European site are depicted in **Figure 2**.

3.3.2 Atmospheric Dispersion Modelling

Model Scenarios

The air quality modelling focussed on the following scenarios, for which traffic data were provided by the appointed transport consultant (Sweco UK Ltd)[3] to facilitate dispersion modelling of vehicle emissions using CERC's ADMS-Roads v5.0.1 model:

- **2022 Baseline & Model Verification**
    - Baseline traffic data were provided for all RAP road links, in addition to an extended road network to capture relevant local authority air quality monitoring locations that were used as part of the model verification exercise (see 'Model Verification' below).
- **2042 Alternative Future Baseline**
    - Using 2022 Baseline traffic data, future year vehicle fleet breakdown and future year vehicle emissions factors, this scenario conservatively assumes no growth in traffic from 2022 to 2042, whilst allowing the future decline in exhaust emissions of NO_x to be represented.
    - This scenario aligns with paragraph 5.4.1.10 of the IAQM guidance[13] with respect to facilitating the calculation of in-combination impacts.
- **2042 With Partnership Local Plans**
    - Using future year vehicle fleet breakdown and future year vehicle emissions factors.
    - Comprising all traffic growth since 2022 associated with adopted and emerging Local Plans for South Staffordshire District, East Staffordshire Borough, Lichfield District, Cannock Chase District, City of Wolverhampton, and Sandwell Metropolitan Borough councils.

- Including background traffic growth[14] for Partnership Authorities where no Local Plan data were available at the time of assessment[15] and for growth contributed by local authorities outside of the Partnership Authorities.

Traffic data were provided as 24-hour AADT flows, with associated percentage of HDV flows, and vehicle speeds (km/h) applicable to the modelled road links in each model scenario. These data are presented in **Appendix A**.

The focus of this assessment is on the in-combination impacts on the relevant European sites from the traffic growth associated with the Partnership Authorities emerging Local Plans. As such, the screening of traffic data to determine which RAP road links exceeded the criteria stipulated by Natural England guidance[12] (see **Section 3.3**) was based on the difference in traffic flows between the ***2042 Alternative Future Baseline*** and the ***2042 With Partnership Authorities Local Plans***. This determined the in-combination traffic impact on each RAP link.

Vehicle Emissions Inventories

The traffic data were used to develop road-NO_x emissions inventory databases for each scenario using Defra's EFT version 12.0. Vehicle emissions factors are provided by EFT v12.0 up to year 2050. However, the associated LAQM tools (i.e. background pollutant maps and NO_x to NO_2 calculator) currently support assessment years up to 2030 only. Therefore, to provide a conservative assessment and minimise limitations, vehicle emissions factors for year 2030 were used for both future year (2042) scenarios.

The emissions inventories accounted for the traffic flow characteristics, including:

- Road type (e.g. urban, rural, motorway)
- Total vehicle flow by link (AADT)
- Percentage of HDVs per link
- Average link speed (km/h)
- A detailed vehicle fleet breakdown derived for the future year (2042) scenarios using national vehicle fleet projections from a base year of 2022[16].

The emissions database outputs for each respective scenario provided road link-specific pollutant emission rates (g/km/s), which were input to the ADMS-Roads model to enable prediction of road-NO_x concentrations at the modelled receptor locations.

Meteorological Data

There were no representative weather monitoring stations within 45 km of the study area. Given the spatial extent of the model area, formatted Numerical Weather Prediction (NWP) data for year 2022 were sourced for a 3 km x 3 km area centred on the former RAF Wheaton airfield. This represented an area of flat terrain, predominantly comprising open fields. As such, the NWP data are not likely to be significantly influenced by urban development or other pronounced topographical features.

[14] Using the Trip End Model Presentation Program (TEMPro) software to view National Trip End Model (NTEM) information.

[15] The transport modelling completed by Sweco UK Ltd[3] excluded emerging Local Plans for Dudley and Walsall Metropolitan Borough Councils due to the absence of data provision at the time of completing the transport modelling assessment.

[16] Vehicle fleet projections (Base 2022) sourced from the National Atmospheric Emissions Inventory (NAEI); https://naei.beis.gov.uk/data/ef-transport (accessed March 2024). These align with the default fleet composition data incorporated in Defra's EFT v12.0.

A wind rose depicting the hourly wind speeds and directions for 2022 is presented in **Appendix B**.

Treatment of Terrain

Terrain datasets were used in the model both to represent the variation in topography throughout the study area and to determine road gradients where appropriate.

The Environment Agency's LIDAR DTM elevation data at 2 m resolution were sourced for use in the ADMS-Roads model. The data were input to the model, which uses the spatial variation in terrain height and surface roughness, combined with local meteorological conditions, to predict a three-dimensional flow and turbulence field over the study area. This enables the model to account for the influence of undulating terrain on wind flow and turbulence, with respect to the dispersion of vehicle emissions.

Background Concentrations & Deposition

Background air pollutant (NO_x, NO_2) concentrations for the baseline year (2022) and future year (2030 as proxy for 2042) were obtained from Defra's national pollutant mapping for the corresponding 1 km^2 grid squares covering the study area.

The equivalent background NH_3 concentrations and rates of N deposition and acid deposition corresponding to the relevant European sites were sourced from site-specific data available from APIS, which provides modelled three year average data across the UK (1 km^2 grid). At the time of completing this assessment, the three year averaged data were based on 2019-2021, with 2020 being the midyear.

Background NH_3 concentrations and N deposition rates for the future year (2042) scenarios were adjusted with reference to JNCC's Nitrogen Futures report (2020)[17], based on projections of NH_3 and NO_x emissions up to 2030. Nationally, emissions of NH_3 are predicted to increase by 1.06% between 2017 and 2030 based on a relatively conservative 'business as usual' scenario[17], equating to a change of 0.08% per annum over this period. However, N deposition rates are projected to decrease by 13.57% over the same period (-1.04% per annum), owing to the greater projected reduction in NO_x emissions.

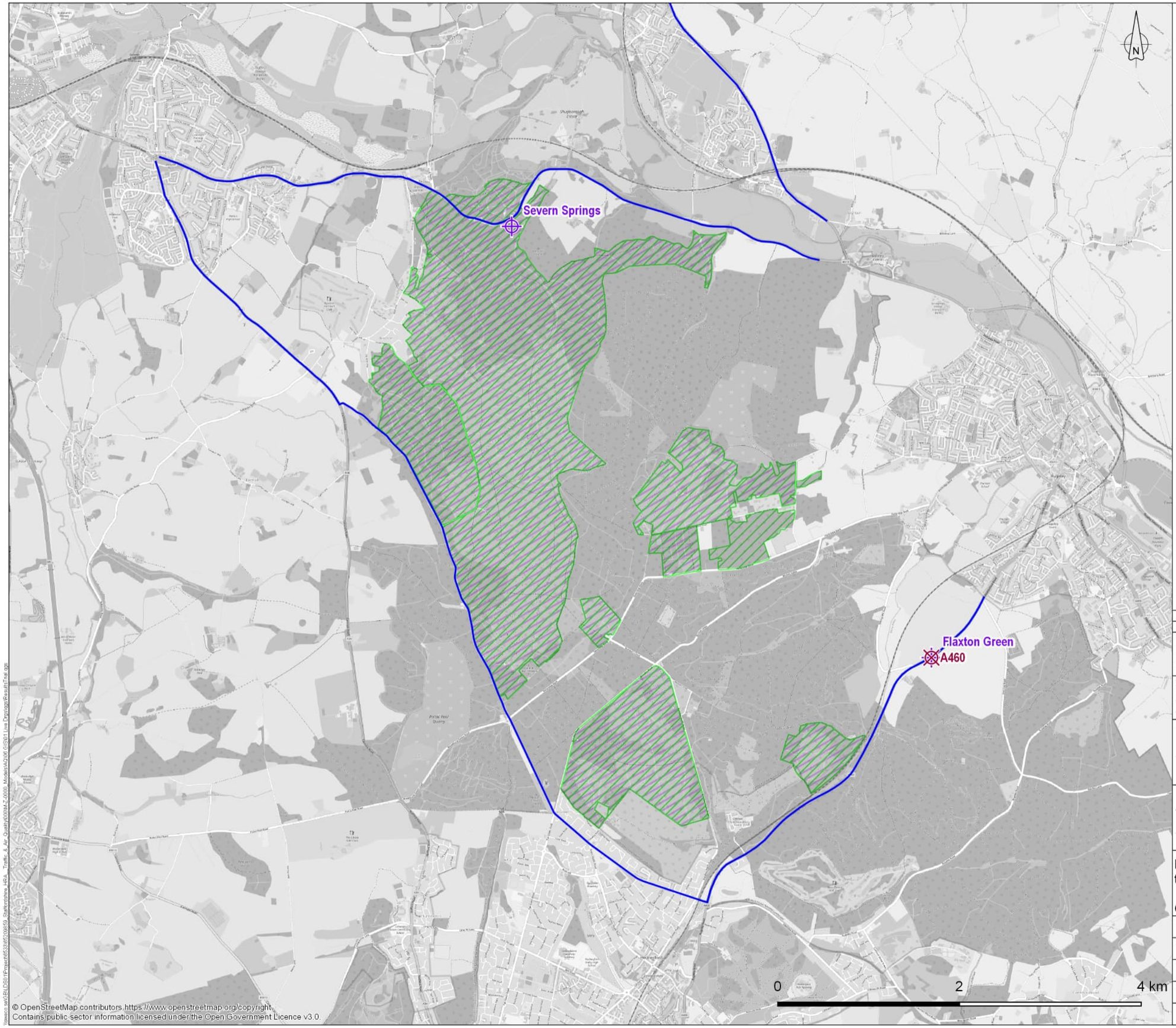
These rates of changes were uniformly applied to background NH_3 concentrations and N deposition rates in this assessment for the period 2020 (APIS background midyear) to 2030 (latest future year included in Nitrogen Futures modelling) and used as representative background data for the 2042 scenarios.

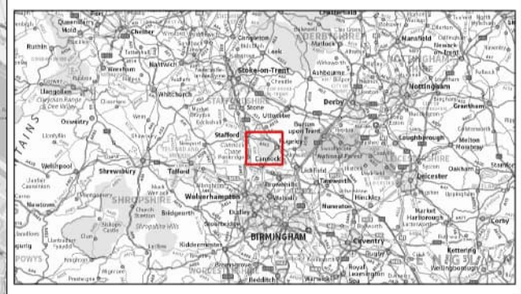
Acid deposition rates for the future year (2042) were conservatively assumed to remain the same as at 2020 background.

Further to the above, Stafford Borough Council and Cannock Chase District Council provided NO_2 and NH_3 monitoring data for a number of locations in proximity to relevant European sites, as summarised in **Table 4**, to provide additional baseline data to inform the assessment.

Data were provided for years 2020 to 2023 inclusive. Given the influence of national travel restrictions during 2020 and 2021 (Covid-19) on vehicle movements and emissions, monitoring data for those years are excluded from this report. The monitoring locations are depicted in **Figure 3**.

[17] Joint Nature Conservation Committee (2020) *Nitrogen Futures*. JNCC Report No. 665.





Legend

- Modelled Roads (HRA)
- ☒ NO_2 Diffusion Tube Monitoring Locations
- ⊕ NH_3 Diffusion Tube Monitoring Locations

Designated Nature Conservation Sites

- ▨ Site of Special Scientific Interest (SSSI)
- ▨ Special Area of Conservation (SAC)

Rev	06.11.2024	FIRST ISSUE	ABC	ABC	ABC
Rev	Date	Amendment Details	Dr'n	Chk'	App'

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Client
South Staffordshire Council

Project Title
Assessment of Air Quality Impacts on European Sites in Staffordshire, Wolverhampton, Walsall, Sandwell, and Dudley

Drawing Title
Figure 3.1 Air quality monitoring locations included in the assessment (NO_2 and NH_3)

Cannock Chase SAC/SSSI

Project Stage			
n/a			
Status	Status Description		
n/a	n/a		
Drawn	Designed	Checked	Approved
LFS	LFS	DP	DP
Sheet Size	Scale	Sweco Ref	Revision
A3	1:40,000	65209859	P01.1

Drawing Number 65209859-SWE-XX-XX-D-AQ-0003

268 WS

268 WSB

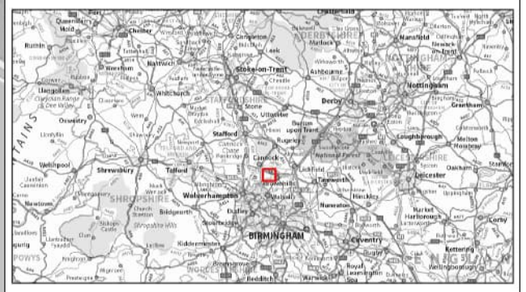
N

Legend

- Modelled Roads (HRA)
- Additional Model Verification Roads
- NO_2 Diffusion Tube Monitoring Locations

Designated Nature Conservation Sites

- Site of Special Scientific Interest (SSSI)
- Special Area of Conservation (SAC)



0 0.6 1.2 km

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Project Title

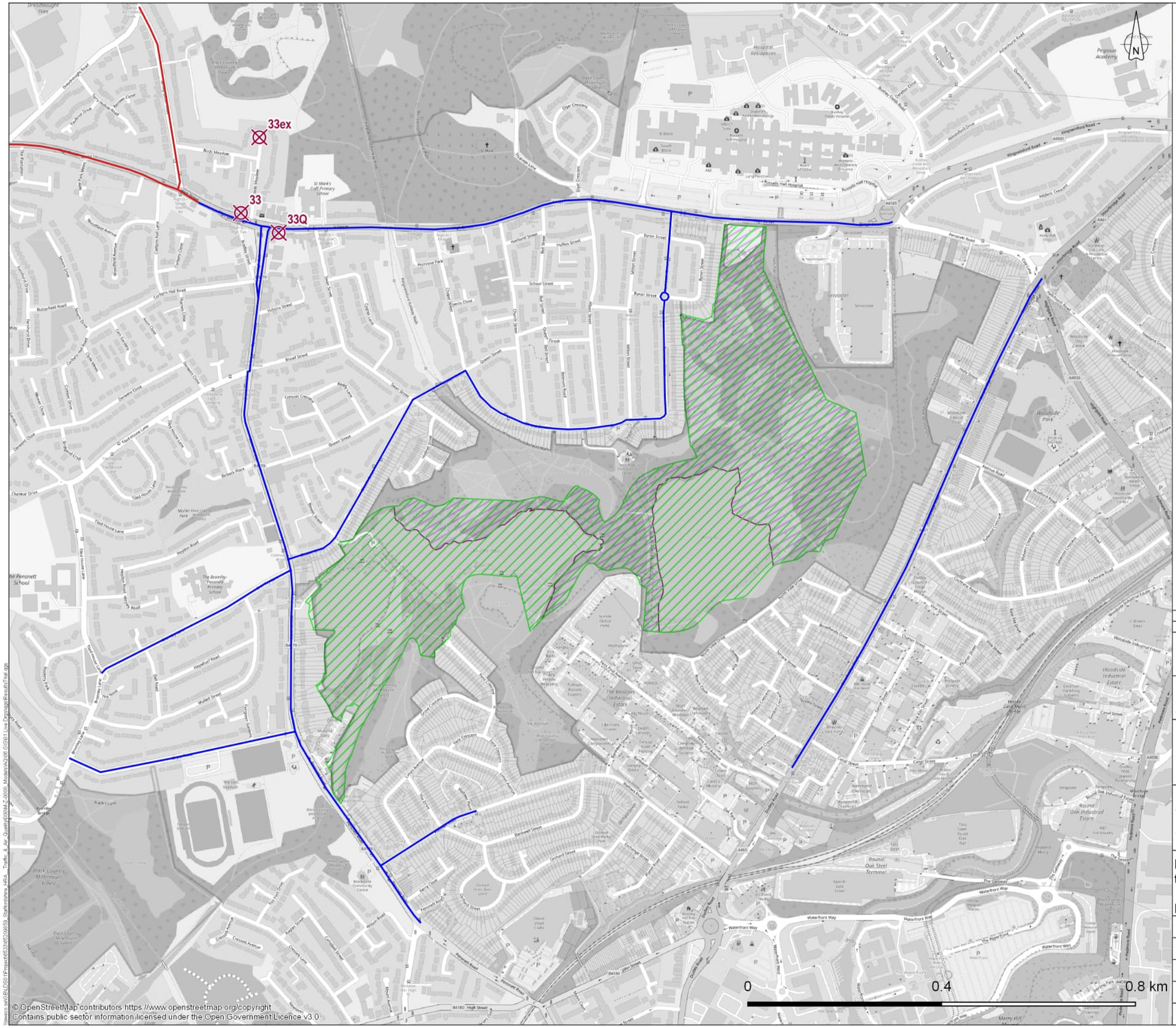
Assessment of Air Quality Impacts on European Sites in Staffordshire, Wolverhampton, Walsall, Sandwell, and Dudley

Drawing Title

Figure 3.2 Air quality monitoring locations included in the assessment (NO_2 and NH_3)

Cannock Extension Canal SAC/SSSI

Project Stage: n/a			
Status: n/a	Status Description: n/a		
Drawn: LFS	Designed: LFS	Checked: DP	Approved: DP
Sheet Size: A3	Scale: 1:10,000	Sweco Ref: 65209859	Revision: P01.1
Drawing Number: 65209859-SWE-XX-XX-D-AQ-0003			

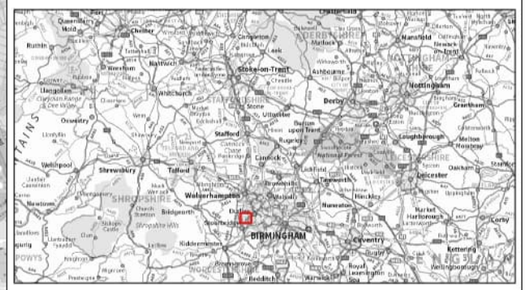


Legend

- Modelled Roads (HRA)
- Additional Model Verification Roads
- NO_2 Diffusion Tube Monitoring Locations

Designated Nature Conservation Sites

- Site of Special Scientific Interest (SSSI)
- Special Area of Conservation (SAC)



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Client: South Staffordshire Council

Project Title: Assessment of Air Quality Impacts on European Sites in Staffordshire, Wolverhampton, Walsall, Sandwell, and Dudley

Drawing Title: Figure 3.3 Air quality monitoring locations included in the assessment (NO_2 and NH_3)

Fens Pools SAC/SSSI

Project Stage			
n/a			
Status: n/a	Status Description: n/a		
Drawn: LFS	Designed: LFS	Checked: DP	Approved: DP
Sheet Size: A3	Scale: 1:7,500	Sweco Ref: 65209859	Revision: P01.1

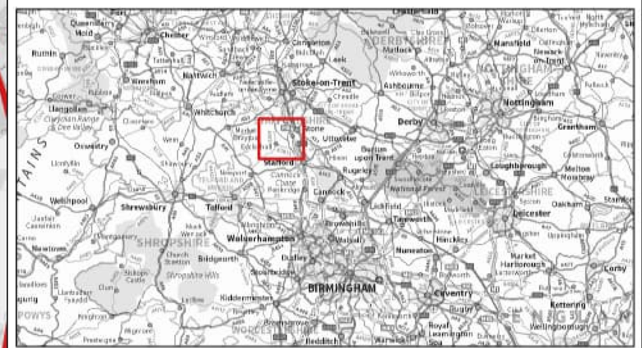
Drawing Number: 65209859-SWE-XX-XX-D-AQ-0003

Legend

- Modelled Roads (HRA)
- Additional Model Verification Roads
- NO_2 Diffusion Tube Monitoring Locations
- NH_3 Diffusion Tube Monitoring Locations

Designated Nature Conservation Sites

- Site of Special Scientific Interest (SSSI)
- Wetland of International Importance (Ramsar)



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Rev	Date	Amendment Details	Dr'n	Chk'	App'

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Client
South Staffordshire Council

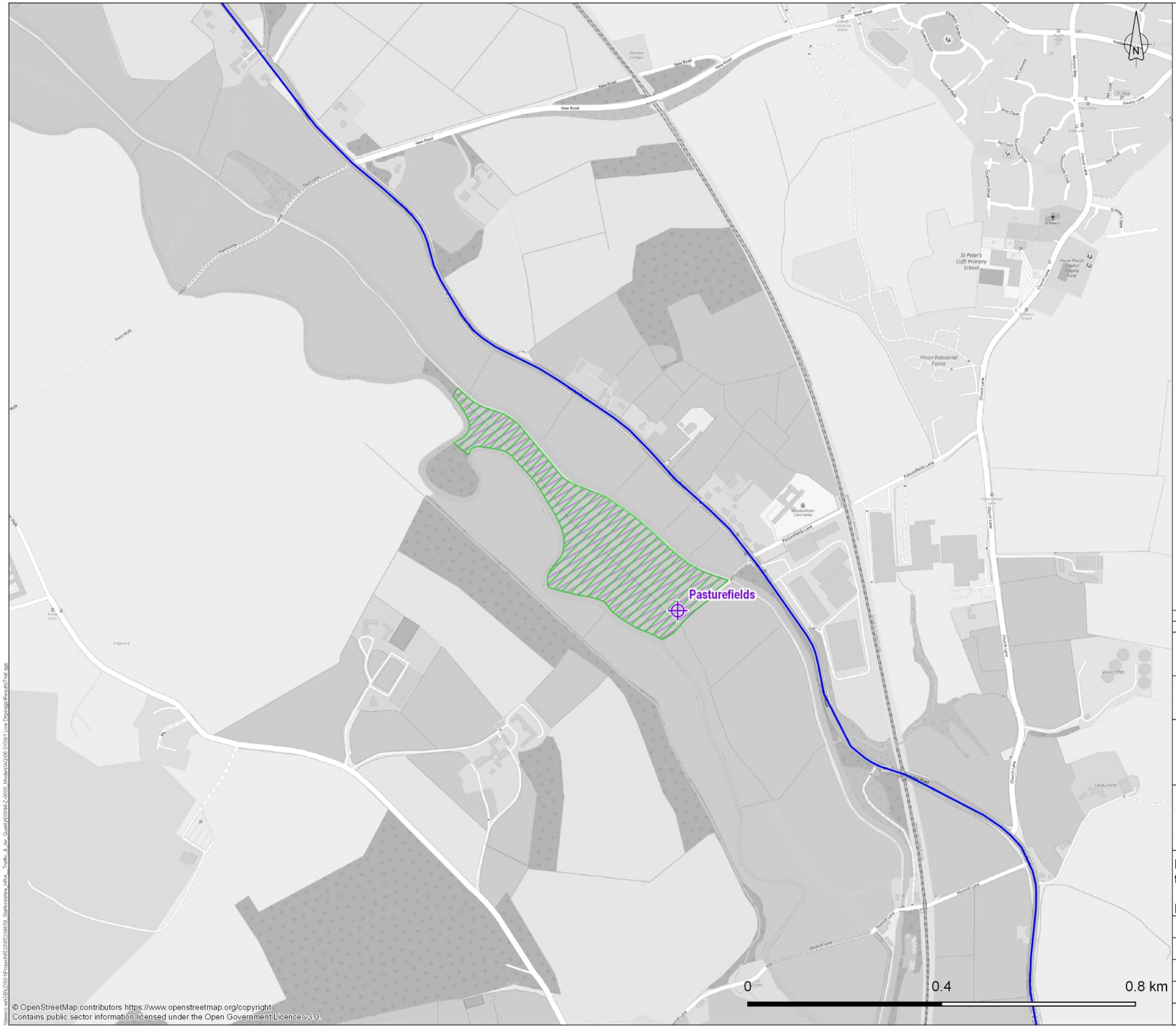
Project Title
Assessment of Air Quality Impacts on European Sites in Staffordshire, Wolverhampton, Walsall, Sandwell, and Dudley

Drawing Title
Figure 3.4 Air quality monitoring locations included in the assessment (NO_2 and NH_3)

Cop Mere SSSI (Ramsar)

Project Stage			
n/a			
Status	Status Description		
n/a	n/a		
Drawn	Designed	Checked	Approved
LFS	LFS	DP	DP
Sheet Size	Scale	Sweco Ref	Revision
A3	1:40,000	65209859	P01.1

Drawing Number 65209859-SWE-XX-XX-D-AQ-0003

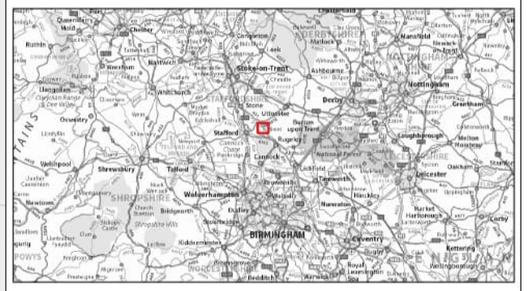


Legend

- Modelled Roads (HRA)
- NH_3 Diffusion Tube Monitoring Locations

Designated Nature Conservation Sites

- Site of Special Scientific Interest (SSSI)
- Special Area of Conservation (SAC)



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Rev	Date	Amendment Details	Dr'n	Chk'	App'

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Client: South Staffordshire Council

Project Title: Assessment of Air Quality Impacts on European Sites in Staffordshire, Wolverhampton, Walsall, Sandwell, and Dudley

Drawing Title: Figure 3.5 Air quality monitoring locations included in the assessment (NO_2 and NH_3)

Pasturefields Salt Marsh SAC/SSSI

Project Stage			
n/a			
Status: n/a	Status Description: n/a		
Drawn: LFS	Designed: LFS	Checked: DP	Approved: DP
Sheet Size: A3	Scale: 1:7,500	Sweco Ref: 65209859	Revision: P01.1
Drawing Number: 65209859-SWE-XX-XX-D-AQ-0003			

Table 4: Relevant air pollutant (NO_2 and NH_3) monitoring locations in proximity to European sites

Monitoring Site ID	Location Description	Nearest European Site	OS Grid Reference	
			X	Y
CM1*	Roadside, adjacent to Copmere Lane and on fringe of woodland belt separating road and Cop Mere	Midlands Meres and Mosses Phase 2 Ramsar (Cop Mere)	380303	329457
SS1*	Rural background, within Punchbowl Car Park, approx. 80 m south of A513	Cannock Chase SAC	398391	320677
FG1**	Roadside, adjacent to A460 Hednesford Road	Cannock Chase SAC	403009	315930
PF1*	Rural, positioned in centre of field within Pasturefields SAC	Pasturefields SAC	399315	324738

Notes:
* Data provided by Stafford Borough Council
** Data provided by Cannock Chase District Council (site also referred to as 'A460, Rugeley')

Model Verification

The model verification process was conducted in accordance with the guidance outlined in LAQM.TG22. Modelled annual mean NO_2 concentrations for the 2022 base year scenario were compared to the equivalent 2022 monitored data at appropriate air quality monitoring locations within the study area. The associated monitoring site data were obtained from Partnership Authorities, namely Stafford Borough, Cannock Chase District, and Dudley Metropolitan Borough councils.

This enabled the derivation of appropriate model adjustment factors, specific to modelled road-NO_x concentrations, to ensure the performance of the dispersion model was acceptable within the context of relevant statistical parameters. The adjustment factors were subsequently applied to all modelled road-NO_x outputs in the 2022 Baseline and 2042 future year scenarios.

Given the geographical extent of the study area, zonal model verification was undertaken based on the local authority area. Further details of the modelling process, input data and the model verification and adjustment procedure are presented in **Appendix B**.

Processing of Model Outputs

Annual Mean NO_x Concentrations

Verified and adjusted annual mean road-NO_x concentrations were modelled at each receptor within the respective European site. The corresponding annual mean background NO_x concentrations were added, dependent on the year and grid square location, to derive the total annual mean NO_x concentrations at each receptor.

Annual Mean NH_3 Concentrations

At present, Defra has not published vehicle emissions factors for NH_3 as part of EFT v12 or other LAQM tools, given that NH_3 is not a relevant pollutant under the LAQM framework.

However, National Highways have published a calculator tool (v4, published January 2024) that applies a ratio between NO_x and NH_3 vehicle emissions (light and heavy vehicles), such that the

modelled road-NO_x concentration can be converted to a road-NH_3 concentration[18]. The ratio applied at each receptor is dependent of the assessment year, vehicle type (light or heavy) and the dominant road type (i.e. motorway, urban, rural).

The resulting road-NH_3 concentrations from light and heavy vehicles were summed and added to the corresponding annual mean background values to derive total annual mean NH_3 concentrations at each receptor.

Nitrogen Deposition from NO_2 and NH_3

Rates of N deposition specific to the contribution from vehicle emissions were derived from both road-NO_2 and road-NH_3 concentrations in each scenario. The modelled road-NO_x concentrations were converted to road-NO_2 using the Defra NO_x-NO_2 calculator v8.1[19]. The associated N deposition rate from the road-NO_2 concentration was derived by applying the following conversions[20], based on habitat type:

- Grassland and similar habitats; 1 µg/m^3 NO_2 = 0.14 kgN/ha/yr
- Forests and similar habitats; 1 µg/m^3 NO_2 = 0.29 kgN/ha/yr

The associated N deposition rate from the road-NH_3 concentration was derived by applying the following conversions[20], based on habitat type:

- Grassland and similar habitats; 1 µg/m^3 NH_3 = 5.19 kgN/ha/yr
- Forests and similar habitats; 1 µg/m^3 NH_3 = 7.79 kgN/ha/yr

The modelled N deposition rates associated with both road-NH_3 and road-NO_2 were summed and added to the relevant background to derive a total deposition rate at each receptor.

Acid Deposition from NO_2 and NH_3

The rates of acid deposition specific to the contributions from both road-NO_2 and road-NH_3 concentrations were derived by applying the following conversions by habitat type, based on 1 keqN/ha/yr being equal to 14 kgN/ha/yr:

- Grassland and similar habitats;
  - 1 µg/m^3 NO_2 = 0.01 keqN/ha/yr
  - 1 µg/m^3 NH_3 = 0.37 keqN/ha/yr
- Forests and similar habitats;
  - 1 µg/m^3 NO_2 = 0.02 keqN/ha/yr
  - 1 µg/m^3 NH_3 = 0.56 keqN/ha/yr

The modelled acid deposition rates associated with both road-NH_3 and road-NO_2 were summed and added to the relevant background to derive a total acid deposition rate at each receptor.

[18] Another NH_3 vehicle emissions tool has been published by Air Quality Consultants (Calculator for Road Emissions of Ammonia (CREAM V1A), 2020). However, the data on which the National Highways tool (2024) is based supersedes the data used in CREAM. Furthermore, the National Highways tool has been independently peer reviewed and supported by IAQM. As such, this tool was selected for use in this assessment.

[19] Defra (2020*) NO_x to NO_2 calculator v8.1* (available via: https://laqm.defra.gov.uk/air-quality/air-quality-assessment/nox-to-no2-calculator/; accessed May 2024)

[20] Derived based on recommended dry deposition velocities as per Environment Agency's Air Quality Technical Advisory Group (AQTAG) document – AQTAG06 (March 2014) *Technical guidance on detailed modelling approach for an appropriate assessment for emissions to air*

3.3.3 Significance Screening Criteria

The results of the atmospheric dispersion modelling at each receptor have been compared to the assessment benchmarks, as specified in **Table 1** for NO_x and NH_3 annual mean critical levels and as stated in **Section 4** for N and acid deposition rate critical loads, where applicable, to evaluate the potential for exceedances in all scenarios.

The magnitude of change in predicted NO_x and NH_3 concentrations and N and acid deposition rates at each receptor, as a result of the Partnership Authorities emerging Local Plans implementation (i.e. the in-combination impact), has been derived through comparing the ***2042 Alternative Future Baseline*** and ***2042 With Partnership Local Plans*** scenarios.

The in-combination impact is expressed as a percentage of the respective critical level (NO_x and NH_3) and the lowest value of the relevant critical load ranges for N-deposition and acid deposition (see **Table 7, Section 4.2**). With reference to Natural England guidance[12], where the change in concentration/deposition rate exceeds 1% of the relevant critical level / load, the potential for significant effects on the sensitive feature(s) to occur cannot be screened out. Below the 1% significance screening threshold, the impacts can be treated as imperceptible, resulting in no significant effect.

If the assessment results predict that the 1% significance screening criterion is exceeded at any sensitive habitat, the results of the air quality assessment are passed to the appointed suitably qualified ecologist to undertake an Appropriate Assessment to determine the likely impacts on the integrity of the relevant European site.

3.4 Assumptions & Limitations

The approach to the air quality assessment aligns with the scope detailed in the Middlemarch brief[1] and, in line with the brief, has excluded the European sites scoped out of the assessment. Both the scope of assessment and reasoning for excluding relevant European sites was agreed in writing by Natural England[2].

There are uncertainties associated with both measured and predicted concentrations of airborne pollutants. The model (ADMS-Roads) used in this assessment relies on input data, including predicted traffic flows, which are subject to uncertainty. The model itself simplifies complex physical systems into a range of algorithms. In addition, local micro-climatic conditions may affect the concentrations of pollutants that the ADMS-Roads model will not consider.

To reduce the uncertainty associated with modelled concentrations, model verification has been carried out with reference to guidance set out in LAQM.TG22. As the model has been verified against local authority monitoring data (NO_2) and adjusted accordingly, there can be reasonable confidence in the predicted concentrations. The root mean square error (i.e. average model uncertainty) of the verified model ranges from 2.5 µg/m^3 to 3.6 µg/m^3, within the ideal range (4 µg/m^3) given by LAQM.TG22. Furthermore, the fractional bias of the verified model, a measure of model tendency to under- or over-predict, is close to zero, indicating there is no systematic tendency either way. Further details of the model verification procedure are provided in **Appendix B**.

Vehicle emissions of NO_x have been derived using Defra's EFT v12.0, the latest version at the time of completing this assessment. Vehicle emissions factors are provided by the EFT up to year 2050. However, the associated LAQM tools (i.e. background pollutant maps and NO_x to NO_2 calculator) currently support assessment years up to 2030 only. It can be reasonably expected that vehicle exhaust emissions of NO_x will decline further beyond 2030, given the UK Government's commitment to cease the sale of new petrol and diesel cars in 2035. Therefore, the use of 2030 emissions factors for the future year (2042) model scenarios represents a conservative approach.

The adopted critical levels and lower critical loads applied in this assessment are based on the information provided by Middlemarch Environmental Ltd[1], which were provided for the relevant qualifying habitat(s) or habitats on which qualifying species rely at each respective European site or associated land parcel (see **Table 7, Section 4.2**).

The adopted and emerging Local Plan site allocations data provided by the Partnership Authorities, which were utilised for the transport modelling study[3], did not indicate the potential for emissions from other non-road plans and projects (i.e. point source emissions from the industrial, energy, and/or waste management sectors, for example). Therefore, the background data obtained from Defra and APIS, which were used in this assessment, were assumed to capture any significant contributions from non-road emissions.

4 Baseline Conditions

4.1 Baseline Air Pollutant Monitoring

The 2022 and 2023 annual mean NO_2 and NH_3 concentrations relating to the Stafford Borough and Cannock Chase District monitoring sites, as per **Table 4**, are presented in **Table 5**.

Table 5: Monitored annual mean NO_2 and NH_3 concentrations for 2022 and 2023 (Units: µg/m^3)

Monitoring Site ID	Nearest European Site	Annual Mean NO_2		Annual Mean NH_3	
		2022	2023	2022	2023
CM1*	Midlands Meres and Mosses Phase 2 Ramsar (Cop Mere)	6.4	6.8	5.8	5.7
SS1*	Cannock Chase SAC	7.2	5.9	3.9	3.3
FG1**	Cannock Chase SAC	16.8	16.2	4.3	4.7
PF1*	Pasturefields Salt Marsh SAC	8.3	8.3	5.5	7.7
	Critical Level (µg/m^3)	**n/a**		**1 or 3**	

The results of the monitoring confirm that levels of NO_2 are sufficiently low that, based on the NO_x to NO_2 relationship, there is confidence that the equivalent annual mean NO_x concentration will be below the critical level (30 µg/m^3) at all locations. However, it is evident that the monitored annual mean concentrations of NH_3 have remained above the respective critical levels of 1 µg/m^3 (Cop Mere and Cannock Chase) and 3 µg/m^3 (Pasturefields Salt Marsh) in both years.

The monitored NH_3 concentrations are demonstrably higher than the APIS background equivalents in **Table 6** below. However, given the seasonal variability in NH_3 emissions driven by agricultural activities and the spatial resolution of the APIS data (1 km^2) relative to a single monitoring point, variability between the data is to be expected.

With the exception of site PF1, annual mean NH_3 concentrations do not vary significantly between 2022 and 2023. At PF1, the change in NH_3 concentrations (+2.2 µg/m^3) is likely to be related to adjacent agricultural activities, given its location within a field and largely unaffected by road emissions.

4.2 Background Data and Environmental Benchmarks

The published Defra and APIS background data relating to annual mean NO_x and NH_3 concentrations, in addition to annual N deposition and acid deposition rates for the relevant European sites, are summarised in **Table 6**. The ranges in background values are presented from across the extent of the modelled study area.

The associated critical levels and critical load ranges that represent the environmental benchmarks adopted for each European site, according to the qualifying habitat(s), are presented in **Table 7**.

The background (2022) and future year (2042) NO_x concentrations are demonstrably below the annual mean critical level (30 µg/m^3) at all European sites. The annual mean NH_3 background concentrations exceed the relevant critical levels at Cannock Chase SAC, Oakhanger Moss, and Cop Mere, with the remaining sites being below. Whilst the NH_3 background at Pasturefields Salt Marsh SAC is below the critical level (3 µg/m^3), the monitored concentrations in 2022 and 2023 reported in **Table 5** indicate the potential for it to be currently exceeded.

Background N deposition rates in both the baseline and future years are projected to exceed the respective lower critical loads at each European site / land parcel, with the exception of Pasturefields Salt Marsh SAC, for which baseline N deposition is marginally below the lower critical load. However, as indicated by the relatively elevated NH_3 ambient concentrations monitored at this site, there is also the potential for the lower critical load to be currently exceeded.

There are only two of the European sites / land parcels that are known to be sensitive to acidification, namely Cannock Chase SAC and Oakhanger Moss. The background acid deposition rates attributed to nitrogen at both sites, as reported in **Table 6**, are above the respective critical loads in **Table 7**.

Table 6: Site specific background annual mean NO_x / NH_3 concentrations and annual N / acid deposition rates (Source: Defra & APIS)

European Site / Land Parcel	NO_x Annual Mean Background (µg/m^3)**		NH_3 Annual Mean Background (µg/m^3)^		N Deposition Background (kgN/ha/yr)^		Acid (N) Deposition Background (keq/ha/yr)^^	
	2022	2042	2022	2042	2022	2042	2022	2042
Cannock Chase SAC	8.7 – 10.6	6.6 – 8.7	1.7 – 2.2	1.7 – 2.2	17.6 – 32.5	15.7 – 29.1	1.3 – 2.4	1.3 – 2.4
Cannock Extension Canal SAC	14.3 – 14.7	11.4 – 11.8	1.8	1.8 – 1.9	17.2 – 17.3	15.4 – 15.5	N/A	
Fens Pools SAC	17.2 – 19.4	14.2 – 16.3	1.8 – 1.9	1.9	16.6 – 17.0	14.9 – 15.2	N/A	
Pasturefields Salt Marsh SAC	9.4 – 9.7	8.1 – 8.4	2.4	2.4	19.3 – 19.5	17.3 – 17.5	N/A	
Oakhanger Moss*	10.8 – 11.5	8.5 – 9.2	3.4 – 3.5	3.4 – 3.5	25.8 – 25.9	23.1 – 23.2	2.0	2.0
Cop Mere*	6.1 – 6.3	5.1 – 5.3	3.2	3.2 – 3.3	23.7 – 41.7	21.2 – 37.4	N/A	

Notes:

* Land parcels within Midlands Meres & Mosses Phase 2 Ramsar Site.

** Obtained from Defra background maps. Latest projected year is 2030 (used as proxy for 2042 backgrounds in this assessment).

^ APIS three year average (2019-2021) adopted for 2022 Baseline. Backgrounds for future year (2042) scenarios were adjusted with reference to JNCC's Nitrogen Futures report (2020) based on the 'business as usual' scenario[17].

^^ APIS three year average (2019-2021) adopted for 2022 Baseline and conservatively assumed as unchanged in 2042. 'N/A' indicates that the European site / land parcel has not been assessed for acid deposition because the habitat(s) is not sensitive to acidification or no critical load data are available.

Table 7: Site specific critical levels (NH_3) and critical loads adopted as environmental benchmarks

European Site / Land Parcel	Qualifying Habitats	NH_3 Annual Mean Critical Level ($\mu g/m^3$)	N Deposition Critical Load Range** (kgN/ha/yr)	Acid (N) Deposition Critical Load (keq/ha/yr)	Relevant RAP Location(s)	Vegetation Type^
Cannock Chase SAC	European dry heaths	1	10 - 20	1.285	1, 3	Grassland
	Northern Atlantic wet heaths with *Erica tetralix*				2	Woodland
Cannock Extension Canal SAC	Permanent oligotrophic waters: Softwater lakes	3	10	N/A	10, 11	Grassland
Fens Pools SAC	Permanent oligotrophic waters: Softwater lakes	3	10	N/A	12, 13	Woodland^^
Pasturefields SAC	Inland salt meadows	3	20 – 30***	N/A	4	Grassland
Oakhanger Moss*	Broadleaved deciduous woodland	1	10 – 20	1.946	25	Grassland
	Rich fens	3	15 – 30	N/A		
	Valley mires, poor fens and transition mires	1	10 – 15	0.9		
	Raised and blanket bogs	1	5 – 10	0.573		
	Moist and wet oligotrophic grasslands: Molinia caerulea meadows	1	15 – 25	1.338		
Cop Mere*	Permanent dystrophic lakes, ponds and pools	1	10	N/A	8	Grassland

Notes:

* Land parcels within Midlands Meres & Mosses Phase 2 Ramsar Site.

** Lower critical load value adopted as benchmark. Where multiple qualifying habitats exist with varying critical load ranges, the lowest critical load is adopted.

*** No critical load range is available for inland salt meadows, as such the values for coastal saltmarsh are recommended to be used instead.

^ Used to define appropriate deposition velocity for NO_2 and NH_3.

^^ Representative of substantial areas of mature woodland between key roads and qualifying habitat.

5 Dispersion Modelling Assessment Results

This section presents:

- The results of the in-combination traffic screening, with reference to the criteria stipulated in Natural England guidance[12] and as described in **Section 3.2**, to determine which European sites / land parcels were screened in/out of the modelling assessment.
- For the sites screened into the assessment, a summary of the dispersion model results at receptors with an in-combination impact equal to or above the 1% significance screening criterion, relative to the assessment benchmarks for NO_x, NH_3, N deposition and/or acid deposition.

The locations and spatial extents of any modelled exceedances of the respective 1% screening criterion are depicted in **Figure 5** (annual mean NH_3), **Figure 6** (N deposition), and **Figure 7** (acid deposition).

The assessment results tables presented in **Appendix C** report the maximum modelled concentration / deposition rate value at each 10 m interval within the respective European site, taken from the boundary closest to the modelled road network to 200 m within the boundary.

Data pertaining to each receptor output point for each pollutant and each scenario (i.e. complete data set of model results) can be provided on request. Full data tables have been excluded from this report to limit file size.

5.1 Traffic Screening Outputs

The outputs of the screening exercise at each RAP location, which focussed on the in-combination traffic flow impact between the ***2042 Alternative Future Baseline*** and the ***2042 With Partnership Authorities Local Plans***, are presented in **Table 8**. The road links associated with each RAP location and corresponding in-combination traffic flow impacts are visualised in **Figure 4**.

The outcomes confirm that each European site / land parcel was screened into the dispersion modelling assessment based on the in-combination traffic flow impact, with the exception of Cop Mere where the in-combination change in traffic is (+52 AADT) is well below the 1,000 domestic AADT criterion.

In addition, following consultation with Natural England in September 2024[21], it was agreed that Oakhanger Moss could be justifiably screened out of the air quality assessment, as the in-combination traffic changes is almost entirely attributed to national background growth at RAP 25 (M6 motorway). The contribution to the traffic change attributed to the Partnership Authorities Local Plans is forecast to be below 100 domestic AADT, which is notably below the 1,000 AADT screening threshold.

The subsections below present the results of the air quality modelling for the 2042 future year scenarios at the sites screened into the assessment.

[21] Partnership Authorities Steering Group Meeting, dated 25 September 2024, attended by Natural England's Principal Officer – Flexible Casework Team. Natural England agreed that Oakhanger Moss could be screened out of the HRA air quality assessment on the basis that the increase in traffic at RAP 25 (M6 motorway) between the 2042 Alternative Future Base and 2042 With Partnership Authorities Local Plans was predominantly attributed to national background traffic growth (>7,000 domestic AADT). By comparison, the in-combination contribution from of the Partnership Authorities Local Plans is forecast to be less than 100 (one hundred) domestic AADT at RAP 25 (M6) and will not result in an impact above the 1% significance screening criterion for any of the assessed pollutants at Oakhanger Moss.

Table 8: Outputs of the in-combination traffic screening exercise (2042 Alternative Future Baseline versus 2042 With Partnership Authorities Local Plans)

European Site / Land Parcel	RAP Ref	Transport Model Road Link Ref*	2042 Alternative Future Base		2042 With Partnership Authorities Local Plans		In-combination impact**		Screened in?
			AADT	HDV	AADT	HDV	AADT	HDV	
Cannock Chase SAC	1	101887_102675	10,529	223	11,825	234	**1,296**	11	**Yes**
	2	110399_514326	12,161	469	14,117	488	**1,956**	19	**Yes**
		514990_514993	13,047	469	15,269	488	**2,222**	19	**Yes**
		512070_512072	11,746	352	13,801	366	**2,055**	14	**Yes**
	3	110411_5100228	3,224	69	3,619	74	395	3	No^
Cannock Extension Canal SAC	10	107909_108012	28,912	4,207	32,790	4,333	**3,878**	123	**Yes**
		102666_108012	28,834	4,015	32,783	4,176	**3,949**	161	**Yes**
		102666_114315	27,863	4,207	31,642	4,392	**3,779**	185	**Yes**
	11	108013_102666	6,338	85	7,409	88	**1,071**	3	**Yes**
		102704_108013	10,841	184	12,381	191	**1,540**	7	**Yes**
Fens Pools SAC	12	101619_113158	24,372	1,030	26,823	1,071	**2,451**	41	**Yes**
		101619_513086	18,304	779	20,125	810	**1,821**	31	**Yes**
		101505_514544	21,244	476	23,232	495	**1,988**	19	**Yes**
	13	110340_513027	18,581	285	20,629	296	**2,048**	11	**Yes**
		101710_513028	19,525	441	21,556	458	**2,031**	17	**Yes**
Pasturefields SAC	4	102212_102675	9,128	739	10,222	769	**1,094**	30	**Yes**
Oakhanger Moss* **	25	100775_100940	64,578	13,691	68,062	14,238	**3,484**	**547**	**Yes**
		100940_100775	64,169	12,705	67,860	13,485	**3,691**	**780**	**Yes**

European Site / Land Parcel	RAP Ref	Transport Model Road Link Ref*	2042 Alternative Future Base		2042 With Partnership Authorities Local Plans		In-combination impact**		Screened in?
			AADT	HDV	AADT	HDV	AADT	HDV	
Cop Mere	8	5100230_5100231	652	31	704	32	52	1	No

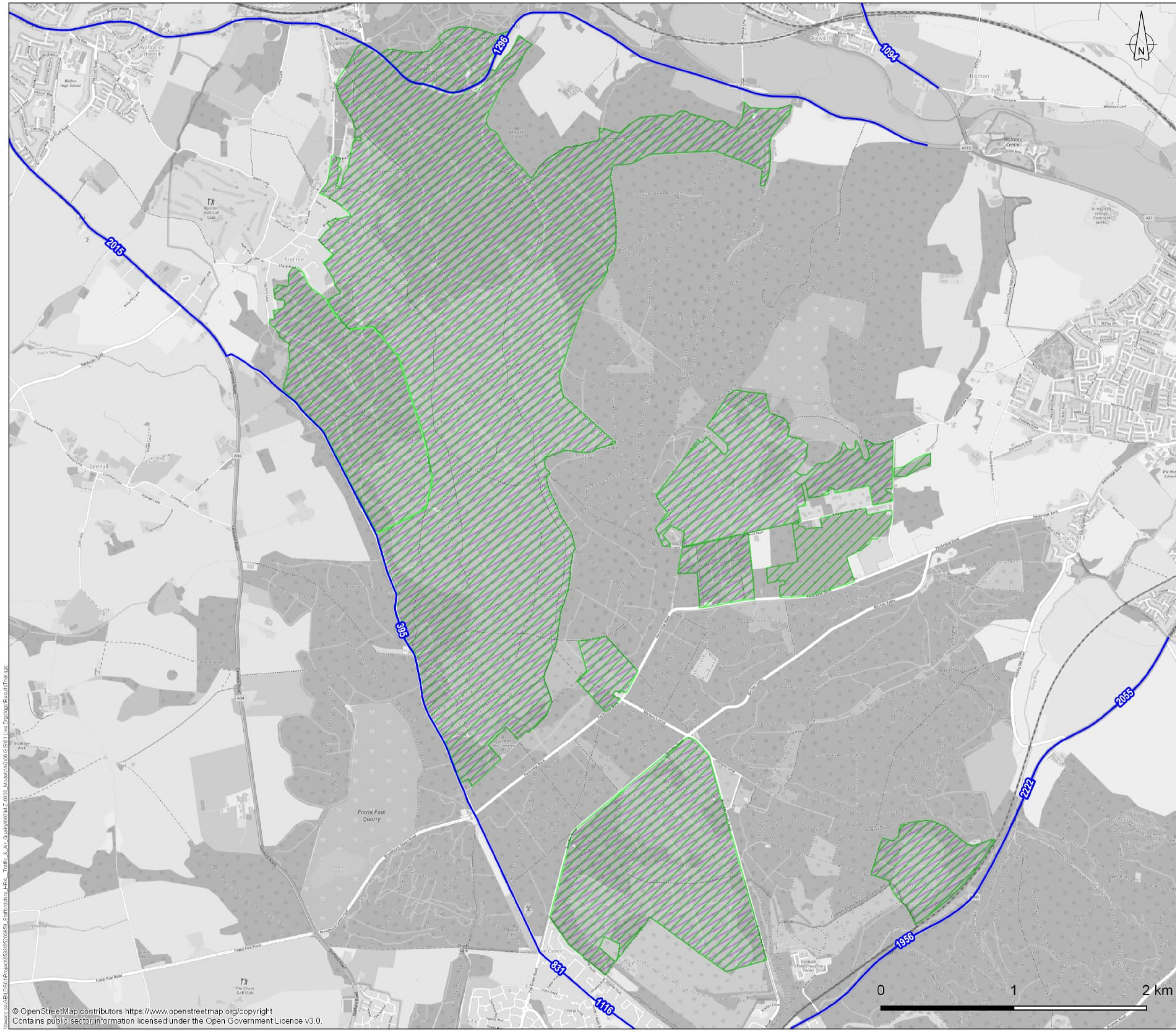
Notes:

* Traffic data at some RAPs were provided as directional flows (e.g. westbound and eastbound) and/or the RAP link was associated with a number of discrete road sections.

** Bold indicates exceedance of 1,000 domestic AADT flows or 200 HDV flows criteria.

*** Screened out of the air quality assessment following consultation with Natural England[21].

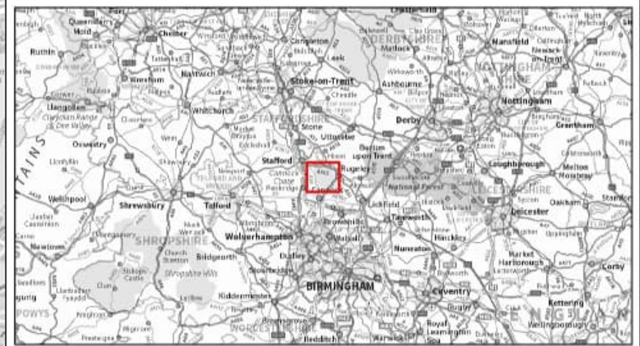
^ Although this road link did not exceed the criteria, it was included in the air quality model for completeness due to other RAPs associated with Cannock Chase SAC exceeding.



Legend

Designated Nature Conservation Sites

- Site of Special Scientific Interest (SSSI)
- Special Area of Conservation (SAC)



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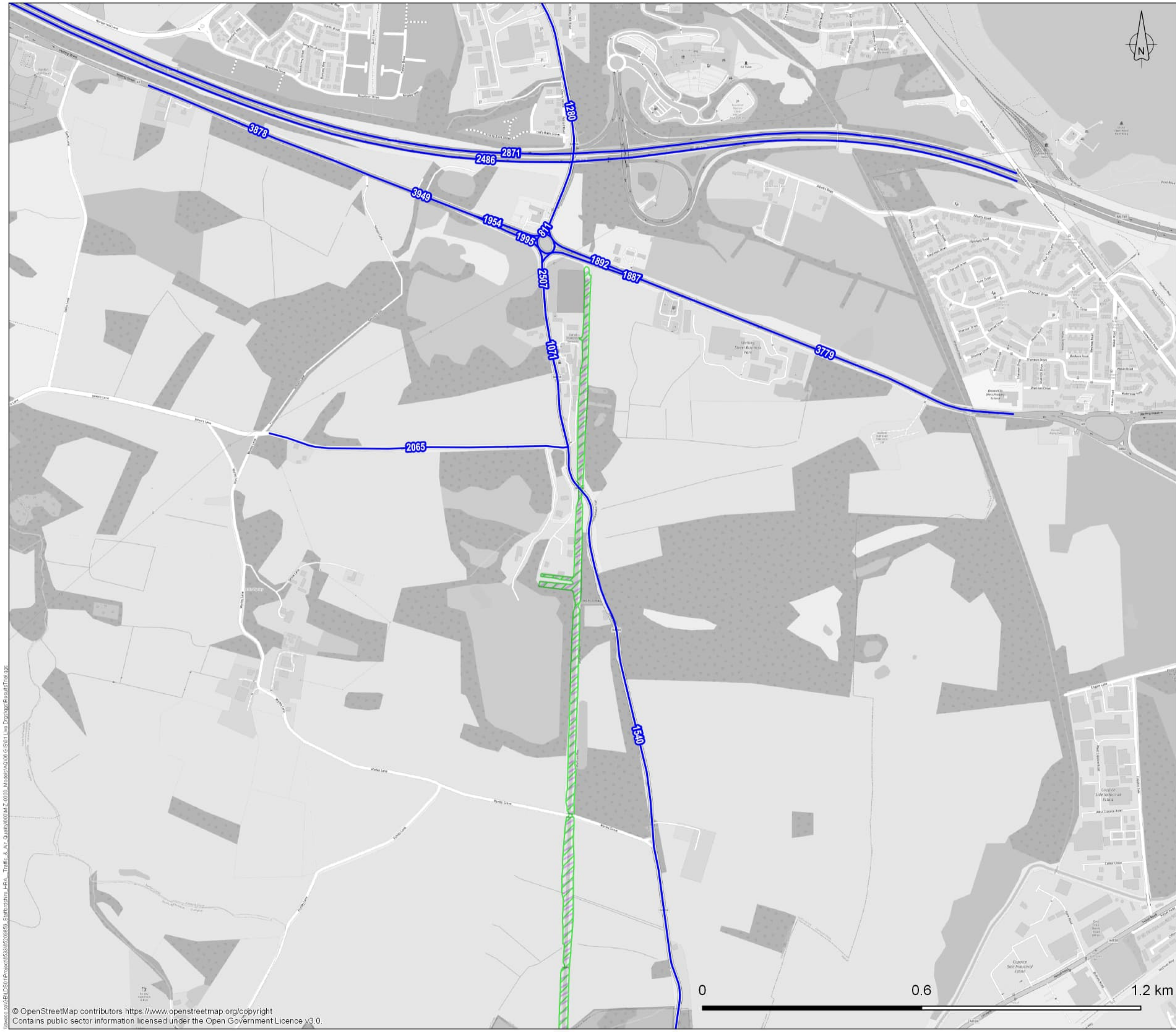
Drawing Title

Figure 4.1 Predicted in-combination traffic flow impact at each relevant RAP road link(s)

Cannock Chase SAC/SSSI

Project Stage			
n/a			
Status	Status Description		
n/a	n/a		
Drawn	Designed	Checked	Approved
LFS	LFS	DP	DP
Sheet Size	Scale	Sweco Ref	Revision
A3	1:27,500	65209859	P01.1

Drawing Number 65209859-SWE-XX-XX-D-AQ-0004



Legend

Designated Nature Conservation Sites

- Site of Special Scientific Interest (SSSI)
- Special Area of Conservation (SAC)

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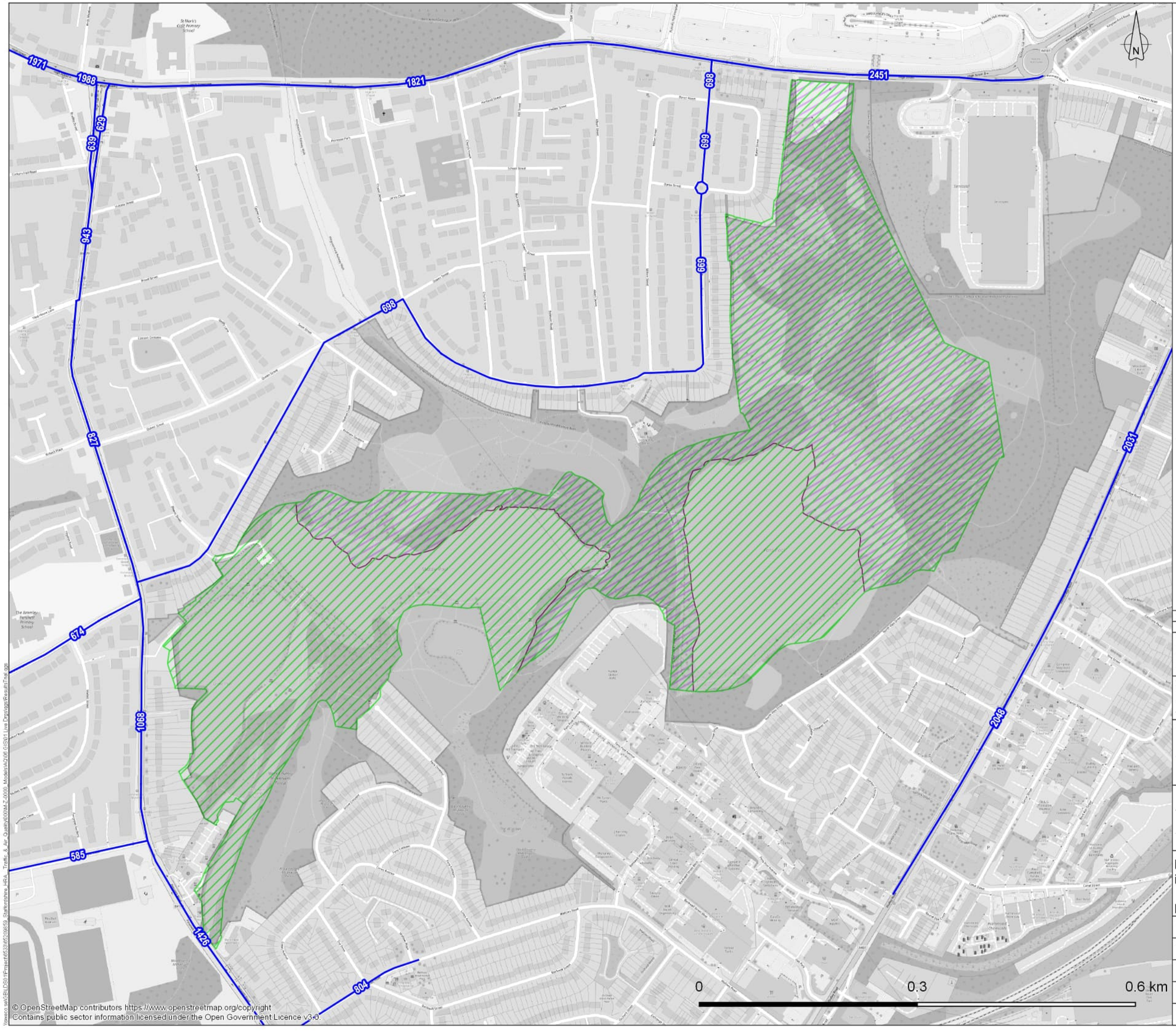
Drawing Title

Figure 4.2 Predicted in-combination traffic flow impact at each relevant RAP road link(s)

Cannock Extension Canal SAC/SSSI

Project Stage			
n/a			
Status	Status Description		
n/a	n/a		
Drawn	Designed	Checked	Approved
LFS	LFS	DP	DP
Sheet Size	Scale	Sweco Ref	Revision
A3	1:10,000	65209859	P01.1

Drawing Number 65209859-SWE-XX-XX-D-AQ-0004



Legend

Designated Nature Conservation Sites

- Site of Special Scientific Interest (SSSI)
- Special Area of Conservation (SAC)

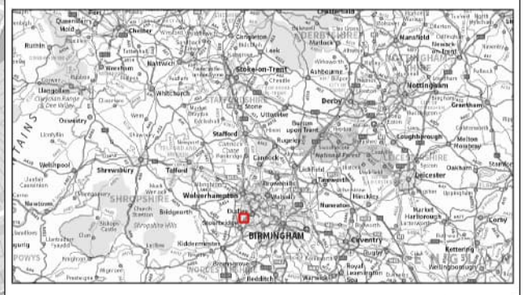


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Figure 4.3 Predicted in-combination traffic flow impact at each relevant RAP road link(s)

Fens Pools SAC/SSSI

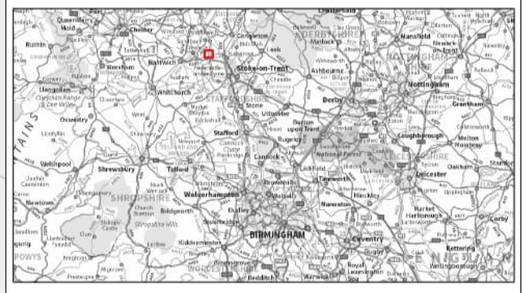
Project Stage			
n/a			
Status: n/a	Status Description: n/a		
Drawn: LFS	Designed: LFS	Checked: DP	Approved: DP
Sheet Size: A3	Scale: 1:5,000	Sweco Ref: 65209859	Revision: P01.1

Drawing Number: 65209859-SWE-XX-XX-D-AQ-0004

Legend

Designated Nature Conservation Sites

- Site of Special Scientific Interest (SSSI)
- Wetland of International Importance (Ramsar)



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Project Title: Assessment of Air Quality Impacts on European Sites in Staffordshire, Wolverhampton, Walsall, Sandwell, and Dudley

Drawing Title: Figure 4.4 Predicted in-combination traffic flow impact at each relevant RAP road link(s)

Oakhanger Moss SSSI (Ramsar)

Project Stage			
n/a			
Status: n/a	Status Description: n/a		
Drawn: LFS	Designed: LFS	Checked: DP	Approved: DP
Sheet Size: A3	Scale: 1:4,000	Sweco Ref: 65209859	Revision: P01.1

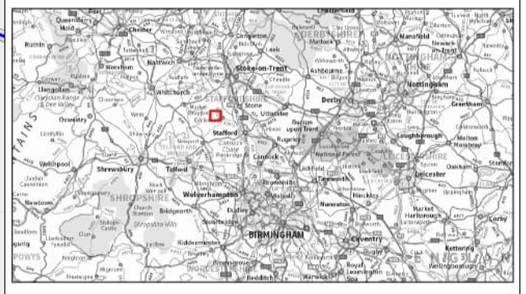
Drawing Number: 65209859-SWE-XX-XX-D-AQ-0004

0 0.2 0.4 km

Legend

Designated Nature Conservation Sites

- Site of Special Scientific Interest (SSSI)
- Wetland of International Importance (Ramsar)



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Drawing Title

Figure 4.5 Predicted in-combination traffic flow impact at each relevant RAP road link(s)

Cop Mere SSSI (Ramsar)

Project Stage			
n/a			
Status	Status Description		
n/a	n/a		
Drawn	Designed	Checked	Approved
LFS	LFS	DP	DP
Sheet Size	Scale	Sweco Ref	Revision
A3	1:7,000	65209859	P01.1

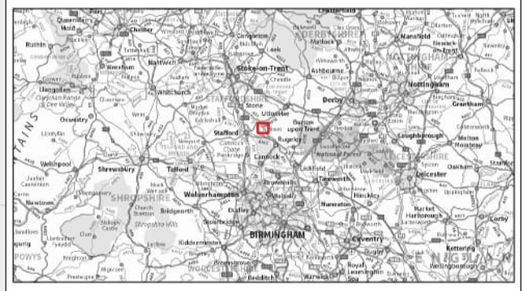
Drawing Number 65209859-SWE-XX-XX-D-AQ-0004

0 0.4 0.8 km

Legend

Designated Nature Conservation Sites

- Site of Special Scientific Interest (SSSI)
- Special Area of Conservation (SAC)



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Project Title: Assessment of Air Quality Impacts on European Sites in Staffordshire, Wolverhampton, Walsall, Sandwell, and Dudley

Drawing Title: Figure 4.6 Predicted in-combination traffic flow impact at each relevant RAP road link(s)

Pasturefields Salt Marsh SAC/SSSI

Project Stage			
n/a			
Status: n/a	Status Description: n/a		
Drawn: LFS	Designed: LFS	Checked: DP	Approved: DP
Sheet Size: A3	Scale: 1:7,500	Sweco Ref: 65209859	Revision: P01.1
Drawing Number: 65209859-SWE-XX-XX-D-AQ-0004			

5.2 Annual Mean NO_x

A summary of the predicted changes in annual mean NO_x concentrations at all modelled receptor points within each relevant European site is presented in **Table 9**. The maximum modelled in-combination impacts at each distance interval are presented in **Appendix C** (Table C1).

The results reported in **Table 9** demonstrate that there are no modelled exceedances of the critical level (30 µg/m^3) within any of the European sites, both in the 2042 Future Baseline and 2042 With Partnership Local Plans scenarios.

On a site-specific basis, the following applies:

- **Cannock Chase SAC** – From a total of 9,788 modelled receptors, 123 were modelled to exceed the 1% significance screening criterion for in-combination impacts, exclusively located directly adjacent to the A513 (RAP 1) that passes through the northern area of the SAC. However, the maximum predicted annual mean NO_x concentration in the With Plans scenario (12.6 µg/m^3) is demonstrably below the critical level.
- **Cannock Extension Canal SAC** – A higher proportion of in-combination impacts (72 of 179 receptors) exceeded the 1% criterion, focussed adjacent to the south of A5 Watling Street (RAP 10) and north of Lime Lane (RAP 11). The maximum modelled annual mean concentration in the With Plans scenario (21.8 µg/m^3) remains well below the critical level.
- **Fens Pools SAC** – A total of 61 of the 3,851 modelled receptors were predicted to exceed the 1% criterion, all of which are focussed within 50 m of the A4101 High Street (RAP 12) within the north of the SAC. The maximum annual mean concentration (26.3 µg/m^3) modelled in the With Plans scenario is approximately 12% (3.7 µg/m^3) below the critical level.
- **Pasturefields Salt Marsh SAC** – The maximum modelled annual mean concentration (8.8 µg/m^3) was predicted to be well below the critical level in both the Future Baseline and With Plans scenarios. There were no modelled in-combination impacts above the 1% criterion.

Based on the above, the Partnership Authorities emerging Local Plans are expected to have no likely significant effect on the European sites with respect to ambient NO_x concentrations.

Table 9: Summary of modelled annual mean NO_x concentrations and in-combination impacts *(2042 Alternative Future Baseline vs 2042 With Partnership Local Plans*)

Parameter	Cannock Chase SAC		Cannock Extension Canal SAC		Fens Pools SAC		Pasturefields Salt Marsh SAC	
	Future Base	With Plans	Future Base	With Plans	Future Base	With Plans	Future Base	With Plans
Max. Road Contribution (*Model*) (µg/m^3)	4.8	5.3	9.2	10.4	10.7	11.9	0.3	0.4
Max. Total Concentration (*Model* + *Background*) (µg/m^3)	12.1	12.6	20.6	21.8	25.1	26.3	8.8	8.8
Number of receptors exceeding Critical Level (30 µg/m^3)	0	0	0	0	0	0	0	0
Total number of model receptors	9,788	9,788	179	179	3,851	3,851	418	418
In-Combination Impact (*2042 With Plans – 2042 Future Base*):								
Maximum worsening (µg/m^3)	0.5		1.2		1.2		0.0	
No. receptors worsening >1% criterion	123		72		61		0	

5.3 Annual Mean NH_3

A summary of the predicted changes in annual mean NH_3 concentrations at all modelled receptor points within each relevant European site is presented in **Table 10**. The maximum modelled in-combination impacts at each distance interval are presented in **Appendix C** (Table C2) and the corresponding contour plots showing the area of exceedance above the 1% significance screening criterion for each European site are depicted in **Figures 5.1 to 5.3**.

The results reported in **Table 10** demonstrate that a number of the European sites are expected to exceed the relevant critical level in both the 2042 Alternative Future Baseline and 2042 With Partnership Local Plans, owing to existing high background levels (see **Section 4**). Similarly, as visualised in the aforementioned figures, an extensive area within Cannock Extension Canal SAC is predicted to experience an in-combination impact above the 1% criterion.

On a site-specific basis, the following applies:

- **Cannock Chase SAC** – From a total of 9,788 modelled receptors, 731 were modelled to exceed the 1% significance screening criterion for in-combination impacts. These are predominantly focussed within 50 m either side of the A513 (RAP 1). A narrow band of in-combination impacts above the 1% criterion was modelled up to 30 m within the SAC adjacent to A460 Rugeley Road (RAP 2), with an even finer band of exceedance of less than 5 m adjacent to Camp Road (RAP 3). The entire site is reported to exceed the critical level (1 µg/m^3) in both the Future Baseline and With Plans scenarios.
- **Cannock Extension Canal SAC** – Approximately 40% of the SAC area was modelled to experience in-combination impacts above the 1% significance screening criterion, mainly encompassing the area of the SAC between the south of A5 Watling Street (RAP 10) and north of Lime Lane (RAP 11). The maximum modelled annual mean concentration in the With Plans scenario (3.0 µg/m^3), modelled directly adjacent to A5 Watling Street, is equal to the critical level (3 µg/m^3). This represents a maximum increase of 0.1 µg/m^3 from the Future Baseline scenario (2.9 µg/m^3).
- **Fens Pools SAC** – A total of 83 of the 3,851 modelled receptors reported an in-combination impact above the 1% criterion, which are focussed within 50 m to the south of the A4101 High Street (RAP 12). The maximum annual mean concentration (3.3 µg/m^3) modelled in the With Plans scenario represents a marginal exceedance of the critical level (3 µg/m^3), with six receptors predicted to exceed the critical level in total, all of which are located adjacent to the A4101 High Street. This represents an increase of five critical level exceedances relative to the Future Baseline scenario (one exceedance). Despite the isolated exceedances of the critical level, the vast majority of the SAC area was modelled to remain below the critical level in both scenarios.
- **Pasturefields Salt Marsh SAC** – The maximum modelled annual mean concentration (2.5 µg/m^3) was predicted to be well below the critical level in both the Future Baseline and With Plans scenarios. There were no modelled in-combination impacts above the 1% criterion. As such, a corresponding contour plot was not generated.

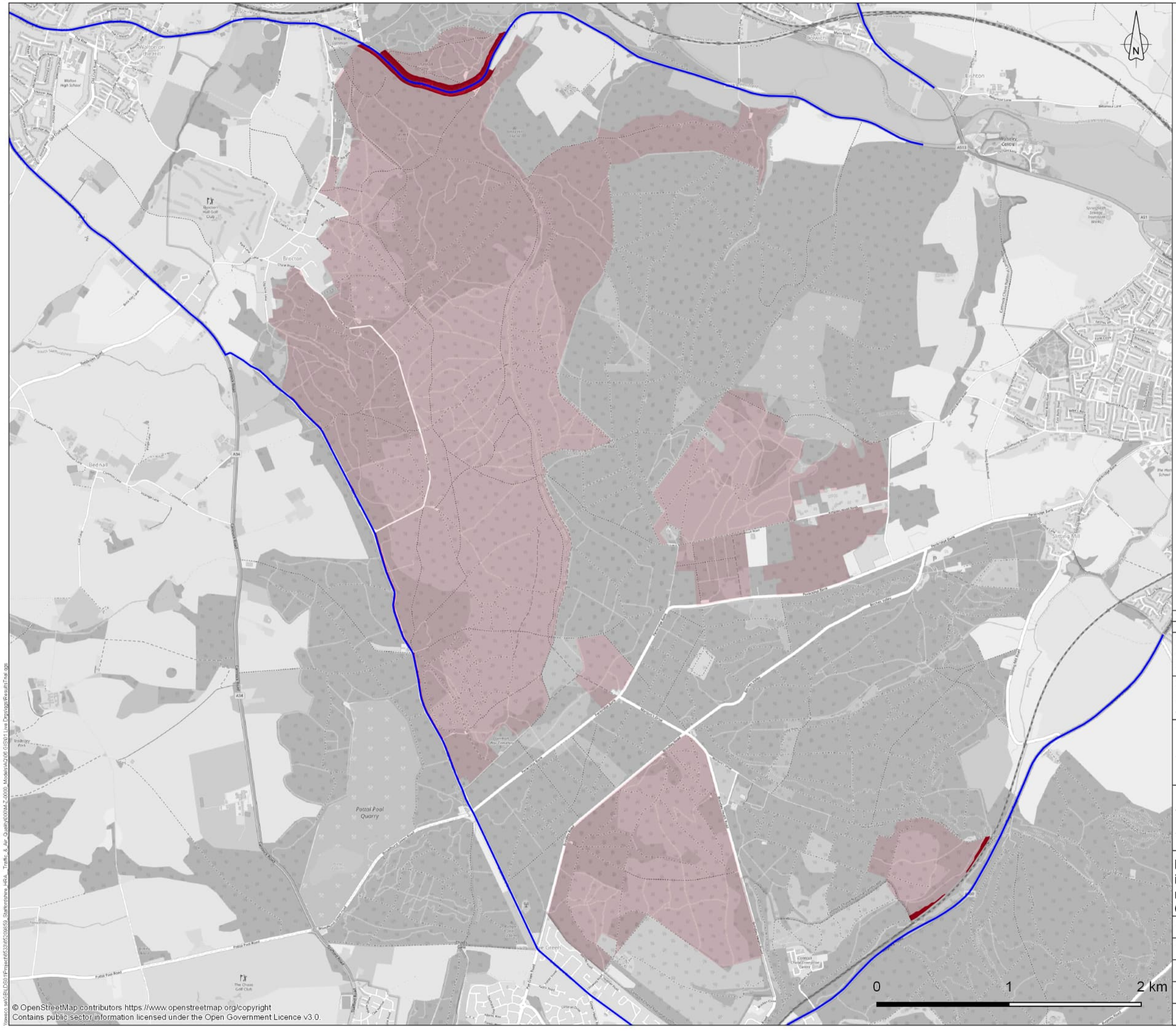
Based on the above, with the exception of Pasturefields Salt Marsh SAC, further Appropriate Assessment of the Partnership Authorities emerging Local Plans in-combination impacts is required by the appointed qualified ecologist.

Table 10: Summary of modelled annual mean NH_3 concentrations and in-combination impacts *(2042 Alternative Future Baseline vs 2042 With Partnership Local Plans*)

Parameter	Cannock Chase SAC		Cannock Extension Canal SAC		Fens Pools SAC		Pasturefields Salt Marsh SAC	
	Future Base	With Plans	Future Base	With Plans	Future Base	With Plans	Future Base	With Plans
Max. Road Contribution (*Model*) (µg/m^3)	0.6	0.6	1.0	1.2	1.2	1.4	0.0	0.0
Max. Total Concentration (*Model* + *Background*) (µg/m^3)	2.7	2.8	2.9	3.0	3.1	3.3	2.5	2.5
Critical Level (µg/m^3)	**1**		**3**		**3**		**3**	
Number of receptors exceeding Critical Level	9,788	9,788	0	2*	1	6	0	0
Total number of model receptors	9,788	9,788	179	179	3,851	3,851	418	418
In-Combination Impact (*2042 With Plans – 2042 Future Base*):								
Maximum worsening (µg/m^3)	0.1		0.1		0.1		0.0	
No. receptors worsening >1% criterion	731		74		83		0	

Notes:

* Both receptors modelled to exceed the critical level by <0.01 µg/m^3 at the SAC boundary closest to the A5 Watling Street.



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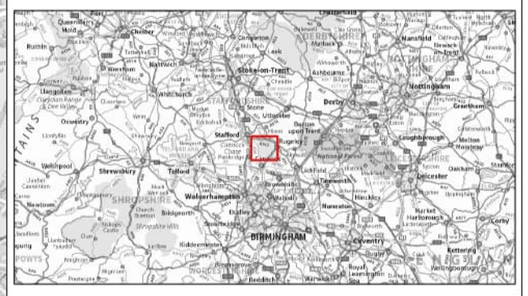
Legend

— Modelled Roads (HRA)

Ammonia (NH_3) Concentration Impact as % of Critical Level
Critical Level = 1 μg/m³

- ▢ Deterioration ≤ 1%
- 🟥 Deterioration > 1%



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Drawing Title

Figure 5.1 Modelled annual mean NH_3 in-combination impact (2042) as a percentage of the relevant critical level

Cannock Chase SAC/SSSI

Project Stage			
n/a			
Status	Status Description		
n/a	n/a		
Drawn	Designed	Checked	Approved
LFS	LFS	DP	DP
Sheet Size	Scale	Sweco Ref	Revision
A3	1:27,500	65209859	P01.1

Drawing Number 65209859-SWE-XX-XX-D-AQ-0005

Legend

Modelled Roads (HRA)

Ammonia (NH_3) Concentration Impact as % of Critical Level
Critical Level = 3 µg/m³

Deterioration ≤ 1%

Deterioration > 1%

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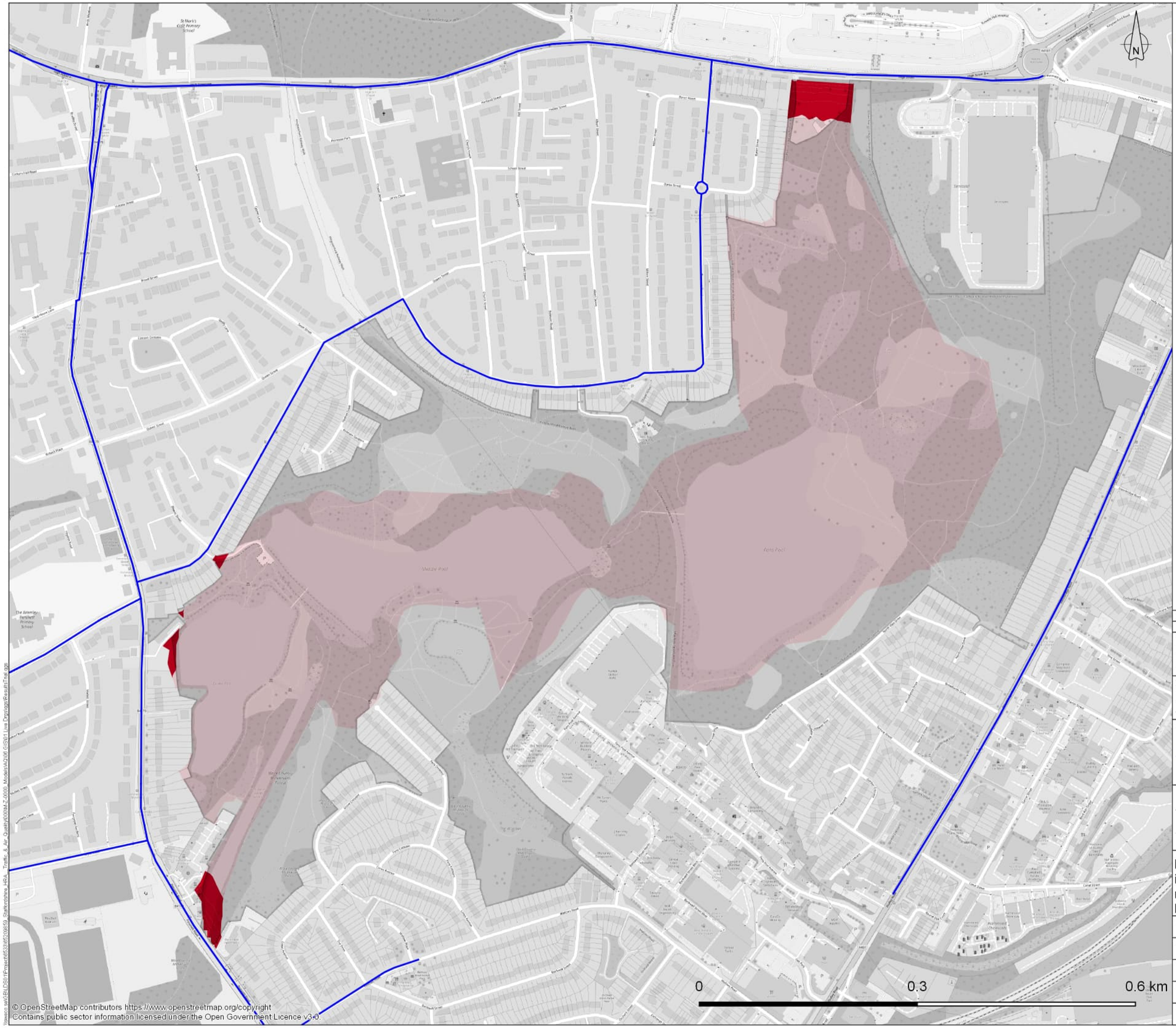
Drawing Title

Figure 5.2 Modelled annual mean NH_3 in-combination impact (2042) as a percentage of the relevant critical level
Cannock Extension Canal SAC/SSSI

Project Stage			
n/a			
Status: n/a	Status Description: n/a		
Drawn: LFS	Designed: LFS	Checked: DP	Approved: DP
Sheet Size: A3	Scale: 1:6,000	Sweco Ref: 65209859	Revision: P01.1

Drawing Number: 65209859-SWE-XX-XX-D-AQ-0005

0 0.3 0.6 km

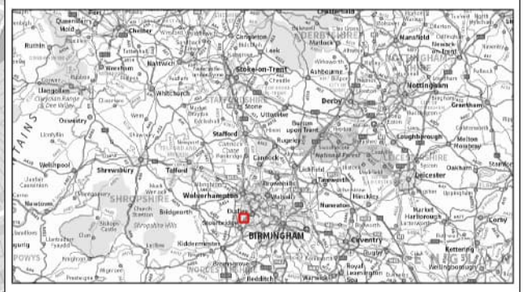


Legend

Modelled Roads (HRA)

Ammonia (NH_3) Concentration Impact as % of Critical Level
Critical Level = 3 µg/m³

- Deterioration ≤ 1%
- Deterioration > 1%



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Drawing Title

Figure 5.3 Modelled annual mean NH_3 in-combination impact (2042) as a percentage of the relevant critical level
Fens Pools SAC/SSSI

Project Stage			
n/a			
Status: n/a	Status Description: n/a		
Drawn: LFS	Designed: LFS	Checked: DP	Approved: DP
Sheet Size: A3	Scale: 1:5,000	Sweco Ref: 65209859	Revision: P01.1

Drawing Number: 65209859-SWE-XX-XX-D-AQ-0005

5.4 Nitrogen Deposition

A summary of the predicted changes in annual N deposition rates at all modelled receptor points within each relevant European site is presented in **Table 11**. The maximum modelled in-combination impacts at each distance interval are presented in **Appendix C** (Table C3) and the corresponding contour plots showing the area of exceedance above the 1% significance screening criterion for each European site are depicted in **Figures 6.1 to 6.3**.

The results reported in **Table 11** demonstrate that a number of the European sites are expected to exceed the relevant critical loads in both the 2042 Alternative Future Baseline and 2042 With Partnership Local Plans, owing to existing high background levels (see **Section 4**). Similarly, as visualised in the aforementioned figures, an extensive area within Cannock Extension Canal SAC is predicted to experience an in-combination impact above the 1% criterion.

On a site-specific basis, the following applies:

- **Cannock Chase SAC** – From a total of 9,788 modelled receptors, 310 were modelled to exceed the 1% significance screening criterion for in-combination impacts. These are all focussed within a 40 m band either side of the A513 (RAP 1). The entire site is reported to exceed the lower critical load (10 kgN/ha/yr) in both the Future Baseline and With Plans scenarios.
- **Cannock Extension Canal SAC** – Approximately 50% of the SAC area was modelled to experience an in-combination impact above the 1% significance screening criterion, encompassing the entirety of the SAC between the south of A5 Watling Street (RAP 10) and north of Lime Lane (RAP 11). In addition, in-combination impacts above the criterion were modelled for the area of the SAC within 200 m to the south of where Lime Lane intersects the SAC. The entire site is reported to exceed the lower critical load (10 kgN/ha/yr) in both the Future Baseline and With Plans scenarios.
- **Fens Pools SAC** – Approximately 10% of the SAC area reported an in-combination impact above the 1% criterion, focussed within 70 m to the south of the A4101 High Street (RAP 12). Additional in-combination impacts above the 1% criterion were modelled up to 20 m within the SAC adjacent to the east of Tennyson Street. The entire site is reported to exceed the lower critical load (10 kgN/ha/yr) in both the Future Baseline and With Plans scenarios.
- **Pasturefields Salt Marsh SAC** – The maximum modelled annual N deposition rate (17.6 kgN/ha/yr) applies to both the Future Baseline and With Plans scenarios and is below the relevant lower critical load (20 kgN/ha/yr). There were no modelled in-combination impacts above the 1% criterion.

Based on the above, with the exception of Pasturefields Salt Marsh SAC, further Appropriate Assessment of the Partnership Authorities emerging Local Plans in-combination impacts is required by the appointed qualified ecologist.

Table 11: Summary of modelled annual N deposition rates and in-combination impacts *(2042 Alternative Future Baseline vs 2042 With Partnership Local Plans*)

Parameter	Cannock Chase SAC		Cannock Extension Canal SAC		Fens Pools SAC		Pasturefields Salt Marsh SAC	
	Future Base	With Plans	Future Base	With Plans	Future Base	With Plans	Future Base	With Plans
Max. Road Contribution (*Model*) (kgN/ha/yr)	3.3	3.6	6.0	6.8	7.1	8.0	0.2	0.2
Max. Total Concentration (*Model* + *Background*) (kgN/ha/yr)	32.3	32.7	21.5	22.3	22.0	22.8	17.6	17.6
Critical Load (kgN/ha/yr)	**10**		**10**		**10**		**20**	
Number of receptors exceeding Critical Load	9,788	9,788	179	179	3,851	3,851	0	0
Total number of model receptors	9,788	9,788	179	179	3,851	3,851	418	418
In-Combination Impact (*2042 With Plans – 2042 Future Base*):								
Maximum worsening (kgN/ha/yr)	0.4		0.8		0.8		0.0	
No. receptors worsening >1% criterion	310		89		396		0	

Legend

Modelled Roads (HRA)

Nitrogen Deposition Rate Impact as a % of Lower Critical Load
Lower Critical Load = 10 kg N/ha/yr

Deterioration ≤ 1%

Deterioration > 1%

0 1 2 km

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Rev	06.11.2024	FIRST ISSUE	ABC	ABC	ABC

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Project Title: Assessment of Air Quality Impacts on European Sites in Staffordshire, Wolverhampton, Walsall, Sandwell, and Dudley

Drawing Title: Figure 6.1 Modelled annual Nitrogen Deposition rate in-combination impact (2042) as a percentage of the relevant lower critical load
Cannock Chase SAC/SSSI

Project Stage			
n/a			
Status: n/a	Status Description: n/a		
Drawn: LFS	Designed: LFS	Checked: DP	Approved: DP
Sheet Size: A3	Scale: 1:27,500	Sweco Ref: 65209859	Revision: P01.1

Drawing Number: 65209859-SWE-XX-XX-D-AQ-0006

Legend

Modelled Roads (HRA)

Nitrogen Deposition Rate Impact as a % of Lower Critical Load

Lower Critical Load = 10 kg N/ha/yr

Deterioration ≤ 1%

Deterioration > 1%

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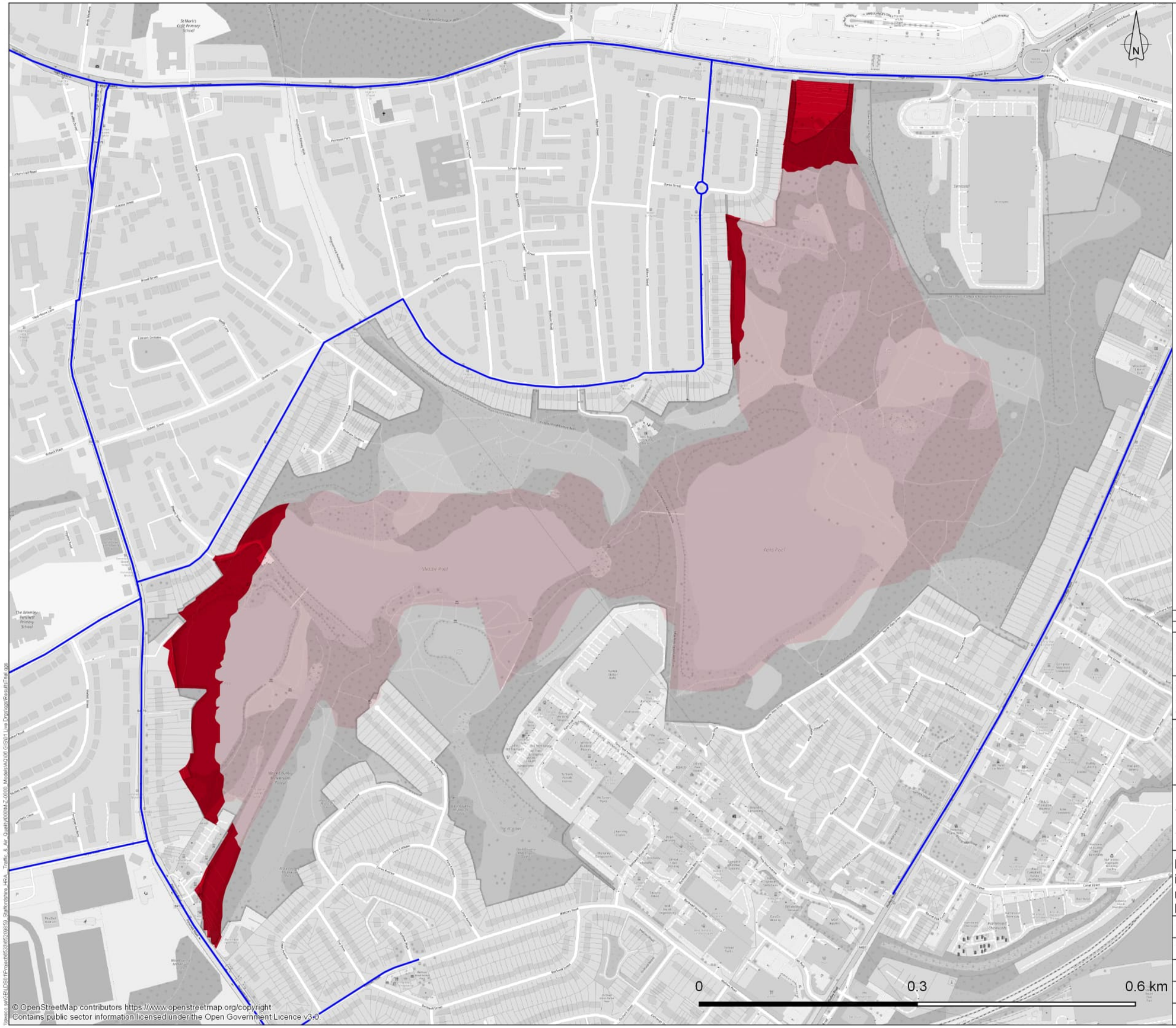
Drawing Title

Figure 6.2 Modelled annual Nitrogen Deposition rate in-combination impact (2042) as a percentage of the relevant lower critical load

Cannock Extension Canal SAC/SSSI

Project Stage			
n/a			
Status	Status Description		
n/a	n/a		
Drawn	Designed	Checked	Approved
LFS	LFS	DP	DP
Sheet Size	Scale	Sweco Ref	Revision
A3	1:6,000	65209859	P01.1

Drawing Number 65209859-SWE-XX-XX-D-AQ-0006

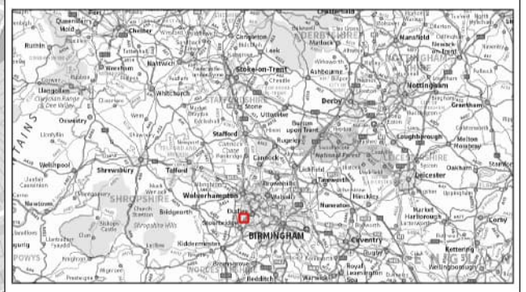


Legend

- Modelled Roads (HRA)

Nitrogen Deposition Rate Impact as a % of Lower Critical Load
Lower Critical Load = 10 kg N/ha/yr

- Deterioration ≤ 1%
- Deterioration > 1%



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Drawing Title

Figure 6.3 Modelled annual Nitrogen Deposition rate in-combination impact (2042) as a percentage of the relevant lower critical load
Fens Pools SAC/SSSI

Project Stage: n/a			
Status: n/a	Status Description: n/a		
Drawn: LFS	Designed: LFS	Checked: DP	Approved: DP
Sheet Size: A3	Scale: 1:5,000	Sweco Ref: 65209859	Revision: P01.1
Drawing Number: 65209859-SWE-XX-XX-D-AQ-0006			

5.5 Acid Deposition

A summary of the predicted changes in annual acid (N) deposition rates at all modelled receptor points within Cannock Chase SAC is presented in **Table 12** . The maximum modelled in-combination impacts at each distance interval are presented in **Appendix C** (Table C4) and the corresponding contour plot showing the area of exceedance above the 1% significance screening criterion is depicted in **Figure 7**.

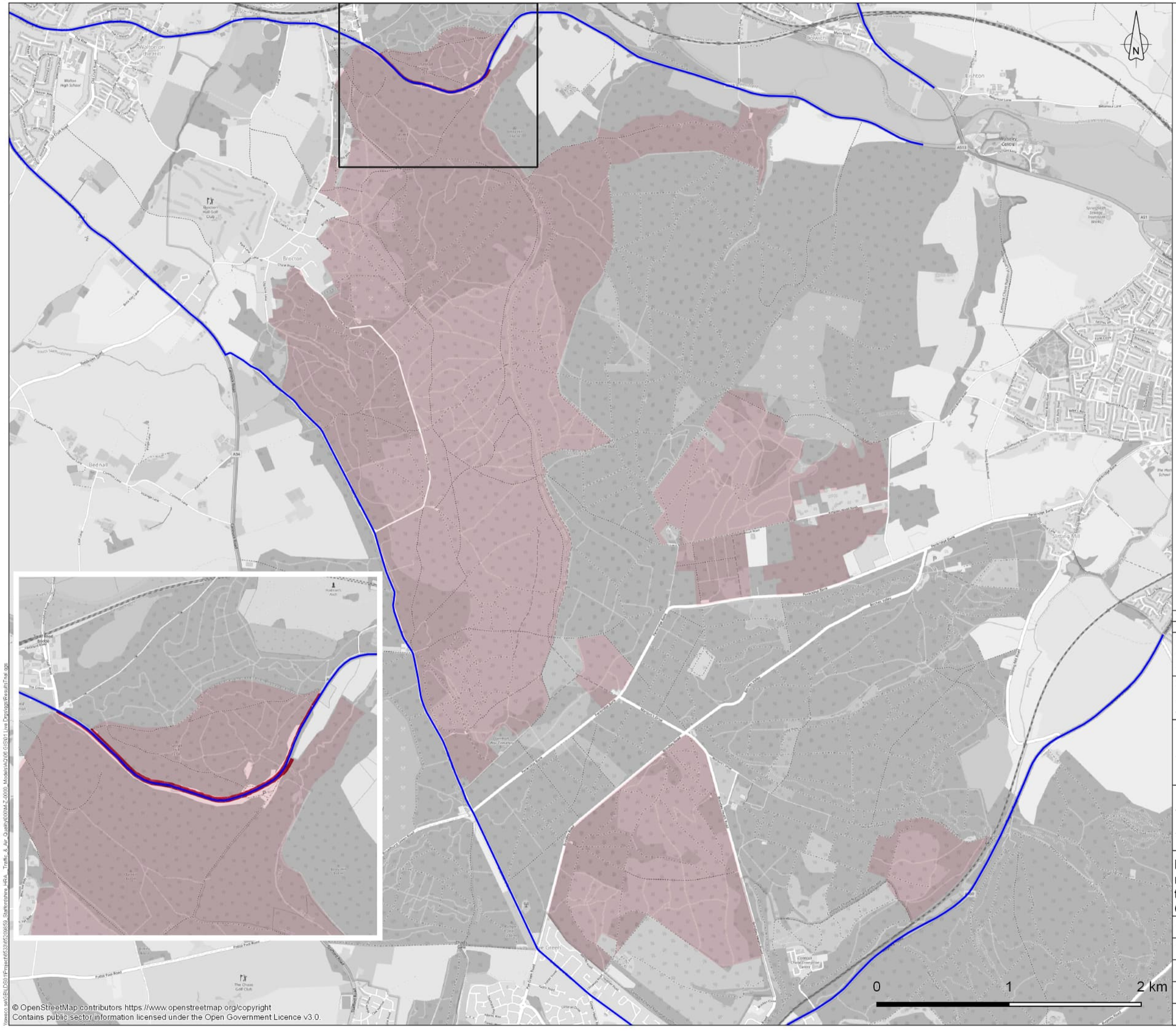
Table 12: Summary of modelled annual acid (N) deposition rates and in-combination impacts *(2042 Alternative Future Baseline vs 2042 With Partnership Local Plans*)

Parameter	Cannock Chase SAC	
	Future Base	**With Plans**
Max. Road Contribution (*Model*) (keqN/ha/yr)	0.234	0.260
Max. Total Concentration (*Model* + *Background*) (keq/ha/yr)	2.581	2.607
Critical Load (keqN/ha/yr)	**1.285**	
Number of receptors exceeding Critical Load	9,788	9,788
Total number of model receptors	9,788	9,788
Maximum worsening (keqN/ha/yr)	0.03	
No. receptors worsening >1% criterion	127	

The results reported in **Table 12** demonstrate that there is an extensive exceedance of the lower critical load within Cannock Chase SAC, both in the 2042 Future Baseline and 2042 With Partnership Local Plans scenarios. However, the area of in-combination impact above the 1% criterion is relatively marginal within Cannock Chase SAC.

From a total of 9,788 modelled receptors, 127 were modelled to exceed the 1% significance screening criterion for in-combination impacts, exclusively located directly adjacent to the A513 (RAP 1) that passes through the northern area of the SAC. All of the SAC is expected to exceed the lower critical load (1.285 keqN/ha/yr) in both the Future Baseline and With Plans scenarios, given that the baseline acid deposition rate is 1.3 keg/ha/yr as a minimum (see **Table 6**).

Based on the above, further Appropriate Assessment of the Partnership Authorities emerging Local Plans in-combination impacts is required by the appointed qualified ecologist.



Legend

Modelled Roads (HRA)

Acid Deposition Rate Impact as a % of Critical Load

Critical Load = 1.285 keq/ha/yr

Deterioration ≤ 1%

Deterioration > 1%

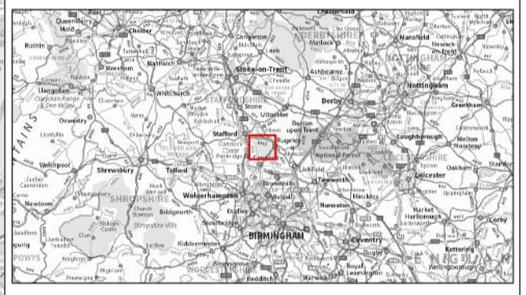


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Figure 7.1 Modelled annual mean Acid Deposition rate in-combination impact (2042) as a percentage of the relevant critical load

Cannock Chase SAC/SSSI

Project Stage			
n/a			
Status: n/a	Status Description: n/a		
Drawn: LFS	Designed: LFS	Checked: DP	Approved: DP
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6 Summary & Conclusions

A detailed air quality assessment has been completed to consider the potential in-combination impacts of the proposed Partnership Authorities emerging Local Plans on potentially sensitive European sites within the region, namely:

- Cannock Chase SAC
- Pasturefields Salt Marsh SAC
- Midlands Meres and Mosses Phase 2 Ramsar site (Cop Mere & Oakhanger Moss)
- Cannock Extension Canal SAC
- Fens Pools SAC.

This assessment has been informed by the outputs of a transport modelling study[3] to determine the level of change in traffic flows associated with the respective adopted and emerging Local Plans on identified key road links within 200 m of the relevant European sites. The traffic data were provided for two future year scenarios, which formed the basis for the assessment of in-combination impacts:

- **2042 Alternative Future Baseline**
- **2042 With Partnership Local Plans**

The difference in vehicle flows on the key road links between the above scenarios were screened with reference to Natural England guidance[12] to determine which links and European sites / land parcels were included in the air quality model. This identified that both Cop Mere and Oakhanger Moss[21] could be screened out of the air quality modelling assessment.

The scope of the air quality modelling assessment aligned with the brief agreed in writing with Natural England prior to works progressing[1,2]. The focus of the assessment was to consider the in-combination changes to ambient NO_x and NH_3 concentrations, as well as nitrogen and acid deposition rates, at qualifying sensitive habitats. The relevant assessment benchmarks used in this study were based on statutory critical levels and/or habitat-specific critical levels and critical loads, as per the brief[1] agreed with Natural England.

Prior to completing the future year modelling assessment, a review of baseline information was completed to understand existing and future background conditions at and near to the European sites. This entailed a review of published background pollutant concentration and deposition data for each European site, sourced from Defra and APIS. In addition, project-specific baseline monitoring data for NO_2 and NH_3 concentrations in proximity to Cannock Chase SAC and Pasturefields Salt Marsh SAC were provided by the Partnership Authorities to supplement the baseline review.

The baseline review identified that:

- Annual mean NO_x concentrations are expected to remain demonstrably below the annual mean critical level (30 µg/m^3) at all European sites.
- The annual mean NH_3 background concentrations exceed the relevant critical levels at Cannock Chase SAC and Oakhanger Moss with the remaining sites being below.
- Whilst the NH_3 background at Pasturefields Salt Marsh SAC is below the critical level (3 µg/m^3), the monitored concentrations in 2022 and 2023 indicate the potential for it to be currently exceeded.
- Background N deposition rates in both the baseline and future years are projected to exceed the respective lower critical loads at each European site / land parcel, with the exception of Pasturefields Salt Marsh SAC, for which baseline N deposition is marginally below the lower critical load.

- Background acid (N) deposition at Cannock Chase SAC – the only European site screened into the assessment that is sensitive to acid deposition – is reported to exceed the lower critical load.

A Baseline (2022) air quality model scenario was completed to facilitate model verification against relevant roadside air quality monitoring locations, such that appropriate adjustment of the model outputs could be applied, and model performance analysed with reference to Defra guidance[11]. The verified model performed within the ideal statistical parameters and was considered suitable for modelling the future year (2042) scenarios.

The key outcomes of the dispersion modelling, pertaining to the in-combination impacts calculated as the difference in air pollutant concentrations / deposition rates between the 2042 Alternative Future Baseline and 2042 With Partnership Local Plans scenarios, are as follows:

- Although the **annual mean NO_x** results report the potential for in-combination impacts above the 1% significance screening criterion within Cannock Chase SAC, Cannock Extension Canal SAC, and Fens Pools SAC, the maximum annual mean concentrations in all sites are predicted to remain below the critical level in the 2042 With Partnership Local Plans scenario.
- The **annual mean NH_3** results confirm that in-combination impacts above the 1% significance screening criterion occur within all sites except for Pasturefields Salt Marsh SAC. Annual mean NH_3 levels within Cannock Chase SAC are expected to exceed the critical level in both the Future Baseline and With Plans scenarios. Whilst the majority of Cannock Extension Canal SAC and Fens Pools SAC are predicted to remain below the relevant critical level, there are isolated exceedances or near-exceedances in the With Plans scenario.
- The **Nitrogen deposition** results confirm that in-combination impacts above the 1% significance screening criterion occur within all sites except for Pasturefields Salt Marsh SAC. Similarly, with the exception of Pasturefields Salt Marsh SAC, annual N deposition rates exceed the respective lower critical loads within all sites in both scenarios, principally due to high background levels.
- The **Acid (N) deposition** results confirm that in-combination impacts above the 1% significance screening criterion occur within Cannock Chase SAC, albeit the impacts are limited to roadside locations. Annual acid deposition rates are expected to exceed the lower critical load in both the Future Baseline and With Plans scenarios across the entire SAC due to background acid deposition rates being above the lower critical load.

The dispersion modelling study has identified that all European sites, except for Pasturefields Salt Marsh SAC, are predicted to experience in-combination impacts above the 1% significance screening criterion for NH_3 concentrations, N deposition rates, and acid (N) deposition rates. In some cases, the modelled areas of the respective sites exceeding the 1% criterion are extensive.

As a result, this study concludes that **a further Appropriate Assessment of the Partnership Authorities' emerging Local Plans, in terms of in-combination impacts, is necessary and should be conducted by a suitably qualified ecologist**. The full and detailed results of this assessment have been provided to the Partnership Authorities.

This air quality assessment has been completed with reference to relevant Natural England and IAQM guidance, and within the context of the applicable limitations and assumptions, as per **Section 3**. Given the potential for material changes to the Partnership Authorities' emerging Local Plans, this air quality model and assessment report may be subject to future revisions.

Appendix A Traffic Data Tables

This section contains the following table:

Table A1: Traffic flow data relating to 2022 Baseline, 2042 Alternative Baseline, and 2042 With Partnership Local Plans scenarios used in the air quality modelling

Table A1: Traffic flow data relating to 2022 Baseline, 2042 Alternative Baseline, and 2042 With Partnership Local Plans scenarios used in the air quality modelling

Air Quality Model Link ID	Relevant Designated Site	2022 Baseline & 2042 Alternative Baseline		2042 With Partnership Local Plans*	
		Total AADT	HDV AADT	Total AADT	HDV AADT
110399_514326_1	Cannock Chase SAC	12,161	469	14,117	488
110411_512028_1	Cannock Chase SAC	5,006	77	5,837	80
512026_512027_1	Cannock Chase SAC	5,051	77	6,167	80
512027_512028_1	Cannock Chase SAC	5,051	77	6,167	80
514990_514993_1	Cannock Chase SAC	13,047	469	15,269	488
110411_5100228_1	Cannock Chase SAC	3,224	69	3,619	74
512070_512072_1	Cannock Chase SAC	11,746	352	13,801	366
101887_102675_2	Cannock Chase SAC	10,529	223	11,825	234
101887_5100228_1	Cannock Chase SAC	15,063	139	17,078	145
101887_102675_3	Cannock Chase SAC	10,529	223	11,825	234
101887_102675_4	Cannock Chase SAC	10,529	223	11,825	234
102212_102675_2	Cannock Chase SAC	9,128	739	10,222	769
101887_102675_5	Cannock Chase SAC	10,529	223	11,825	234
102666_107910_1	Cannock Extension Canal SAC	5,918	238	6,729	248
108013_102666_1	Cannock Extension Canal SAC	6,338	85	7,409	88
107909_108012_1	Cannock Extension Canal SAC	28,912	4,207	32,790	4,333
102666_108012_1	Cannock Extension Canal SAC	14,534	2,026	16,529	2,107
109642_108964_1	Cannock Extension Canal SAC	23,357	2,417	26,228	2,514
102666_114315_1	Cannock Extension Canal SAC	13,741	2,075	15,633	2,194
109641_109617_1	Cannock Extension Canal SAC	20,372	2,063	22,858	2,146
102666_108013_1	Cannock Extension Canal SAC	9,921	135	11,357	140
102704_108013_1	Cannock Extension Canal SAC	10,841	184	12,381	191
108013_108014_1	Cannock Extension Canal SAC	11,300	261	13,365	272
102666_108012_2	Cannock Extension Canal SAC	28,834	4,015	32,783	4,176
108012_102666_1	Cannock Extension Canal SAC	14,300	1,989	16,254	2,069
102666_107910_2	Cannock Extension Canal SAC	9,258	306	10,538	318
107910_102666_1	Cannock Extension Canal SAC	3,340	68	3,809	70
102666_108013_2	Cannock Extension Canal SAC	16,259	219	18,766	228
102666_114315_2	Cannock Extension Canal SAC	27,863	4,207	31,642	4,392
114315_102666_1	Cannock Extension Canal SAC	14,122	2,132	16,009	2,198
1_AB_1	Cannock Extension Canal SAC	8,647	2,804	9,908	2,917
1_BC_1	Cannock Extension Canal SAC	20,570	2,057	23,450	2,142
1_CD_1	Cannock Extension Canal SAC	22,257	2,082	25,374	2,168
1_DE_1	Cannock Extension Canal SAC	14,872	766	16,977	788
1_EF_1	Cannock Extension Canal SAC	24,334	2,233	27,683	2,302
1_FG_1	Cannock Extension Canal SAC	19,003	2,744	21,583	2,833
1_GH_1	Cannock Extension Canal SAC	20,399	2,776	23,317	2,867
1_HA_1	Cannock Extension Canal SAC	13,321	1,491	15,229	1,541

Air Quality Model Link ID	Relevant Designated Site	2022 Baseline & 2042 Alternative Baseline		2042 With Partnership Local Plans*	
		Total AADT	HDV AADT	Total AADT	HDV AADT
101537_101548_1	Fens Pools SAC	12,175	128	13,348	133
101478_107217_1	Fens Pools SAC	5,918	68	6,592	71
107217_107219_1	Fens Pools SAC	10,717	96	11,785	100
101519_107217_1	Fens Pools SAC	16,233	164	17,757	170
101537_107219_1	Fens Pools SAC	11,237	144	12,663	150
107218_107219_1	Fens Pools SAC	5,245	58	5,830	60
101519_110607_1	Fens Pools SAC	10,064	95	10,891	99
101619_113158_1	Fens Pools SAC	24,372	1,030	26,823	1,071
101519_513072_1	Fens Pools SAC	6,169	69	6,867	71
101609_513085_1	Fens Pools SAC	6,169	69	6,867	71
513072_513085_1	Fens Pools SAC	6,169	69	6,867	71
101619_513086_1	Fens Pools SAC	18,304	779	20,125	810
101537_514545_1	Fens Pools SAC	7,558	59	8,362	62
101609_513082_1	Fens Pools SAC	6,169	69	6,867	71
110340_513027_1	Fens Pools SAC	18,581	285	20,629	296
513026_513027_1	Fens Pools SAC	18,581	285	20,629	296
101710_513028_1	Fens Pools SAC	19,525	441	21,556	458
101619_514575_1	Fens Pools SAC	6,169	69	6,867	71
513029_513082_1	Fens Pools SAC	6,167	69	6,866	73
513029_514575_1	Fens Pools SAC	6,167	69	6,866	73
101512_101516_1	Fens Pools SAC	6,247	142	6,876	147
101509_101512_1	Fens Pools SAC	9,864	192	10,807	200
101516_513084_1	Fens Pools SAC	18,304	779	20,125	810
101505_514544_1	Fens Pools SAC	21,244	476	23,232	495
101505_513083_1	Fens Pools SAC	20,076	537	22,047	559
514543_101505_1	Fens Pools SAC	5,855	56	6,494	58
101512_514543_1	Fens Pools SAC	5,855	56	6,494	58
101509_110607_1	Fens Pools SAC	10,208	207	11,183	216
513084_520411_1	Fens Pools SAC	18,304	779	20,125	810
513086_520411_1	Fens Pools SAC	18,304	779	20,125	810
514575_513029_1	Fens Pools SAC	2,611	16	2,913	16
513029_514575_2	Fens Pools SAC	6,167	69	6,866	73
513029_514575_3	Fens Pools SAC	3,556	53	3,953	57
5100230_5100231_1	Cop Mere (Ramsar)	652	31	704	32
101057_5100234_1	Cop Mere (Ramsar)	2,953	126	3,277	131
5100230_5100231_2	Cop Mere (Ramsar)	652	31	704	32
5100230_5100231_3	Cop Mere (Ramsar)	652	31	704	32
5100230_5100231_4	Cop Mere (Ramsar)	652	31	704	32
101057_5100234_3	Cop Mere (Ramsar)	2,953	126	3,277	131
100775_100940_1	Oakhanger Moss (Ramsar)	64,578	13,691	68,062	14,238

Air Quality Model Link ID	Relevant Designated Site	2022 Baseline & 2042 Alternative Baseline		2042 With Partnership Local Plans*	
		Total AADT	HDV AADT	Total AADT	HDV AADT
100940_100775_1	Oakhanger Moss (Ramsar)	64,169	12,705	67,860	13,485
102212_102675_1	Pasturefields Salt Marsh SAC	9,128	739	10,222	769
101887_102675_1	For Model Verification Only	5,128	111	-	-
101060_101058_1	For Model Verification Only	5,292	262	-	-
102911_105358_1	For Model Verification Only	6,082	134	-	-
102911_102890_1	For Model Verification Only	7,710	178	-	-
102855_102890_1	For Model Verification Only	10,457	166	-	-
101529_101494_1	For Model Verification Only	10,725	550	-	-
101494_101424_1	For Model Verification Only	16,075	1,014	-	-
101440_101424_1	For Model Verification Only	6,872	170	-	-
101351_101424_1	For Model Verification Only	11,361	645	-	-
101424_101058_1	For Model Verification Only	2,548	334	-	-
101060_101293_1	For Model Verification Only	5,106	187	-	-
101098_101057_1	For Model Verification Only	1,890	147	-	-
101489_107227_1	For Model Verification Only	12,255	92	-	-
101463_101489_1	For Model Verification Only	13,984	364	-	-
101594_110060_1	For Model Verification Only	9,515	90	-	-
110060_1000215_1	For Model Verification Only	12,057	83	-	-
101583_111234_1	For Model Verification Only	3,993	21	-	-
101612_111235_1	For Model Verification Only	9,716	39	-	-
101594_111235_1	For Model Verification Only	10,854	12	-	-
110060_113992_1	For Model Verification Only	14,504	155	-	-
101583_521124_1	For Model Verification Only	9,902	126	-	-
101612_521124_1	For Model Verification Only	9,902	126	-	-
101612_521126_1	For Model Verification Only	7,702	49	-	-
110060_521126_1	For Model Verification Only	8,140	49	-	-
102890_514328_1	For Model Verification Only	5,844	180	-	-
514328_520765_1	For Model Verification Only	11,746	352	-	-
514327_520765_1	For Model Verification Only	11,746	352	-	-
512064_102890_1	For Model Verification Only	3,404	111	-	-
515133_515135_1	For Model Verification Only	25,198	442	-	-
515132_101887_1	For Model Verification Only	12,253	253	-	-
515132_515133_1	For Model Verification Only	12,586	211	-	-
101489_513083_1	For Model Verification Only	20,076	537	-	-
101612_513043_1	For Model Verification Only	9,509	98	-	-
101617_513043_1	For Model Verification Only	9,141	108	-	-
105358_515064_1	For Model Verification Only	3,102	78	-	-
515064_515127_1	For Model Verification Only	6,082	134	-	-
513015_5100222_1	For Model Verification Only	9,182	129	-	-
101583_5100222_1	For Model Verification Only	9,182	129	-	-

Air Quality Model Link ID	Relevant Designated Site	2022 Baseline & 2042 Alternative Baseline		2042 With Partnership Local Plans*	
		Total AADT	HDV AADT	Total AADT	HDV AADT
5100228_101887_1	For Model Verification Only	7,534	79	-	-
101060_5100231_1	For Model Verification Only	4,769	108	-	-
5100234_101057_1	For Model Verification Only	1,484	60	-	-
100896_515077_1	For Model Verification Only	5,631	381	-	-
105357_512070_1	For Model Verification Only	11,746	352	-	-
102206_103258_1	For Model Verification Only	7,066	687	-	-
107909_115403_1	For Model Verification Only	28,996	3,915	-	-
107909_514987_1	For Model Verification Only	7,084	220	-	-
107910_520644_1	For Model Verification Only	4,738	162	-	-
514883_520644_1	For Model Verification Only	4,738	162	-	-
102675_101887_1	For Model Verification Only	5,401	112	-	-
101887_515132_1	For Model Verification Only	12,218	225	-	-
101887_515132_2	For Model Verification Only	12,218	225	-	-
101887_5100228_2	For Model Verification Only	7,529	60	-	-
101887_515132_3	For Model Verification Only	12,218	225	-	-
515132_101887_2	For Model Verification Only	12,253	253	-	-
101887_515132_4	For Model Verification Only	12,218	225	-	-
102890_102855_1	For Model Verification Only	9,133	126	-	-
102855_102890_2	For Model Verification Only	10,457	166	-	-
102890_512064_1	For Model Verification Only	2,552	110	-	-
102890_512064_2	For Model Verification Only	2,552	110	-	-
102890_514328_2	For Model Verification Only	5,844	180	-	-
102890_102911_1	For Model Verification Only	7,915	185	-	-
102911_515095_1	For Model Verification Only	8,948	287	-	-
102911_105358_2	For Model Verification Only	6,082	134	-	-
515064_105358_1	For Model Verification Only	3,067	56	-	-
105358_515064_2	For Model Verification Only	3,102	78	-	-
105358_515064_3	For Model Verification Only	3,102	78	-	-
101058_101424_1	For Model Verification Only	2,765	359	-	-
101424_101058_2	For Model Verification Only	2,548	334	-	-
101424_101440_1	For Model Verification Only	6,435	200	-	-
101424_101440_2	For Model Verification Only	6,435	200	-	-
101424_101351_1	For Model Verification Only	11,322	639	-	-
101424_101494_1	For Model Verification Only	14,834	781	-	-
101494_101529_1	For Model Verification Only	11,360	539	-	-
101057_5100234_2	For Model Verification Only	1,469	66	-	-
101058_101060_1	For Model Verification Only	4,835	220	-	-
101058_101060_2	For Model Verification Only	4,835	220	-	-
101058_101424_2	For Model Verification Only	2,765	359	-	-
101058_101424_3	For Model Verification Only	2,765	359	-	-

Air Quality Model Link ID	Relevant Designated Site	2022 Baseline & 2042 Alternative Baseline		2042 With Partnership Local Plans*	
		Total AADT	HDV AADT	Total AADT	HDV AADT
101057_101098_1	For Model Verification Only	1,951	149	-	-
101057_101098_2	For Model Verification Only	1,951	149	-	-
7_AB_1	For Model Verification Only	4,366	486	-	-
7_BC_1	For Model Verification Only	4,827	393	-	-
7_CD_1	For Model Verification Only	5,887	467	-	-
7_DE_1	For Model Verification Only	4,417	251	-	-
7_EF_1	For Model Verification Only	5,939	473	-	-
7_FG_1	For Model Verification Only	3,368	343	-	-
7_GH_1	For Model Verification Only	6,172	499	-	-
7_HA_1	For Model Verification Only	5,049	459	-	-
6_AB_1	For Model Verification Only	10,526	1,264	-	-
6_BC_1	For Model Verification Only	18,678	1,017	-	-
6_CD_1	For Model Verification Only	22,036	1,084	-	-
6_DE_1	For Model Verification Only	12,891	579	-	-
6_EF_1	For Model Verification Only	23,658	1,267	-	-
6_FG_1	For Model Verification Only	22,088	1,169	-	-
6_GH_1	For Model Verification Only	19,692	1,330	-	-
6_HA_1	For Model Verification Only	15,409	917	-	-
3_AB_1	For Model Verification Only	5,576	375	-	-
3_BC_1	For Model Verification Only	15,011	291	-	-
3_CD_1	For Model Verification Only	16,618	347	-	-
3_DE_1	For Model Verification Only	11,894	237	-	-
3_EF_1	For Model Verification Only	16,320	340	-	-
3_FG_1	For Model Verification Only	12,832	253	-	-
3_GH_1	For Model Verification Only	14,835	357	-	-
3_HA_1	For Model Verification Only	9,238	282	-	-
4_AB_1	For Model Verification Only	7,471	112	-	-
4_BC_1	For Model Verification Only	16,072	299	-	-
4_CD_1	For Model Verification Only	12,110	223	-	-
4_DE_1	For Model Verification Only	13,991	275	-	-
4_EF_1	For Model Verification Only	8,173	234	-	-
4_FA_1	For Model Verification Only	11,220	267	-	-
101058_101424_4	For Model Verification Only	2,765	359	-	-
101058_101424_5	For Model Verification Only	2,765	359	-	-

Notes:

* Links that have no traffic flow presented in the *2042 With Partnership Local Plans* scenario were only required in the *2022 Baseline* scenario to support the model verification exercise and were not within 200 m of a European site.

Appendix B Dispersion Modelling Approach & Verification

Dispersion Model Selection

The predicted impacts on air quality at the identified European sites, associated with changes to vehicle emissions as a result of the Partnership Authorities Local Plans, were assessed using Cambridge Environmental Research Consultants (CERC) atmospheric dispersion modelling system for roads (ADMS-Roads v5.0).

ADMS-Roads applies advanced algorithms for the height-dependence of wind speed, turbulence and stability to produce improved predictions of air pollutant concentrations within the given model domain. It can predict long-term and short-term concentrations, as well as calculations of percentile concentrations.

ADMS-Roads is a validated model, developed in the UK by CERC. The model validation process includes comparisons with data from the UK's Automatic Urban Rural Network (AURN) and specific verification exercises using standard field, laboratory and numerical data sets. CERC is also involved in European programmes on model harmonisation, and their models were compared favourably against other EU and U.S. EPA systems. Further information in relation to this is available from the CERC web site at http://www.cerc.co.uk/environmental-software/model-validation.html.

Model Input Parameters

A number of the key model inputs are detailed in **Section 3.3** of the main report, including the model study area, receptor selection, traffic data and associated vehicle emission rates, and treatment of terrain. The below provides details of the other model input parameters applicable to this assessment.

Modelled Road Link Geometry

ADMS-Roads requires inputs of road widths and, where relevant, heights of street canyons, although no street canyons were identified for this study. Road geometries were determined using a combination of OpenStreeMap.org for road centreline geometries and Ordnance Survey Mastermap Topography to refine centreline geometries and determine average road widths for each modelled road link. This enabled the model to reflect real-world conditions as closely as possible.

Surface Roughness

Surface roughness is a parameter used to represent the unevenness of the surface throughout the model domain, which influences the vertical mixing of pollutants through enhancing mechanical turbulence.

The surface roughness length was set to 0.5m across the modelled study area, which is equivalent to parkland and open suburbia land uses. This reflects the mixed nature of the vegetation at roadside and within the European sites.

The meteorological data sourced for this project was representative of a predominantly rural area (open fields). Therefore, the surface roughness length was set to 0.02 m at the meteorological site.

Minimum Monin-Obukhov Length

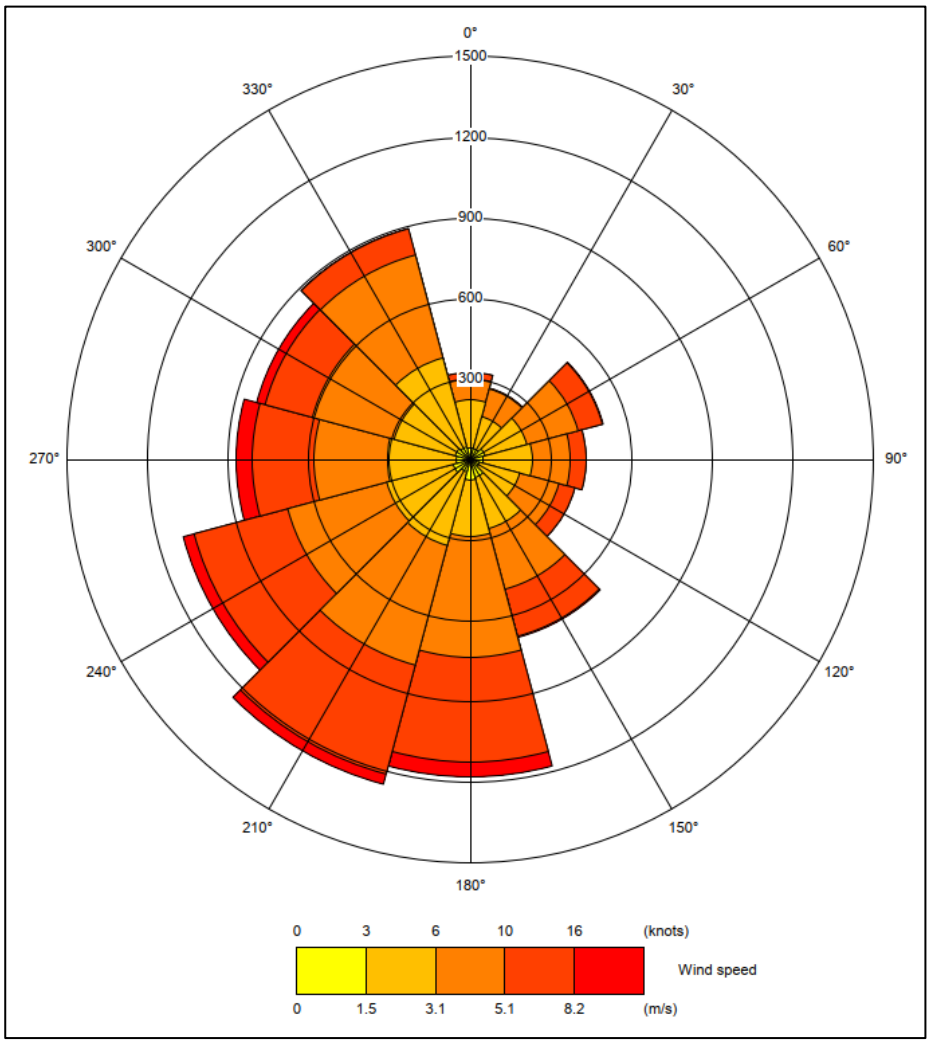
The Monin-Obukhov (MO) length is a measure of the stability of the atmosphere and is used by the model to predict how air will mix near to the ground (i.e. within boundary layer) and how pollutants will disperse. A minimum MO length of 10m was applied uniformly across the modelled study area given the predominantly rural to suburban nature of the study area, which will tend to experience more stable atmospheric conditions compared to built-up urban areas.

Meteorological Data

There were no representative weather monitoring stations within 45 km of the study area. Given the geographical extent of the model area, formatted Numerical Weather Prediction (NWP) data for year 2022 were sourced for a 3 km x 3 km area centred on the former RAF Wheaton airfield at 52.732°N, 2.235°W. This represented an area of flat terrain, predominantly comprising open fields. As such, the NWP data are not likely to be significantly influenced by urban development or other pronounced topographical features.

A wind rose for the 2022 hourly data is presented in **Figure B1**.

Figure B1: Wind rose for 2022 hourly NWP meteorological data



Model Verification & Adjustment

The predicted annual mean NO_2 concentration results from the base year (2022) model scenario were compared with equivalent 2022 monitored results at a number of diffusion tubes sites within Stafford Borough Council, Cannock Chase District Council, and Dudley Metropolitan Borough Council in the modelled study area. With reference to Defra's LAQM.TG22, the majority of modelled concentrations should be within +/-25% of the equivalent monitored value, but ideally within +/10%.

Differences between modelled and measured pollutant concentrations can be caused by a number of factors, including:

- Uncertainties and limitations with meteorological data
- Uncertainties in source activity data such as traffic flow data and vehicle emissions factors
- Estimates of background pollutant concentrations
- Model input parameters such as roughness length, minimum Monin-Obukhov length, and overall model limitations
- The overall limitations with the dispersion model
- Uncertainties associated with monitoring data, including siting.

Model verification is a process that allows these uncertainties to be investigated and, through appropriate adjustment of the modelled road-NO_x contribution, minimised to improve the consistency of modelling results versus available monitored data. Model adjustment factors for road-NO_x derived through this process were applied to all subsequent model scenario outputs.

Model Performance

To evaluate model performance and assess uncertainties, the model results were subjected to statistical analyses to establish confidence in the results being presented, both before and after verification. The statistical parameters assessed comprised:

- The correlation coefficient
- Fractional bias
- Root mean square error (RMSE)

A more detailed description on these statistical parameters is provided in **Table B1** below, taken from LAQM.TG22 Box 7-21.

Table B1: Description of model performance statistics

Statistical Parameter	Description	Ideal Value
Root Mean Square Error (RMSE)	RMSE is used to define the average error or uncertainty of the model. The units of RMSE are the same as the quantities compared. If the RMSE values are higher than 25% of the Objective being assessed, it is recommended that the model inputs and verification should be revisited in order to make improvements. Ideally an RMSE within 10% of the air quality Objective would be derived, which equates to 4 µg/m^3 for the annual mean NO_2 Objective.	0.0 µg/m^3 (or <4.0 µg/m3; 10% of Objective))
Fractional Bias (FB)	It is used to identify if the model shows a systematic tendency to over or under predict. FB values vary between +2 and -2 and has an ideal value of zero. Negative values suggest a model over-prediction and positive values suggest a model under-prediction.	0.0
Correlation Coefficient (CC)	It is used to measure the linear relationship between predicted and observed data. A value of zero means no relationship and a value of 1 means absolute relationship. This statistic can be particularly useful when comparing a large number of model and observed data points.	1.0

Verification Methodology

The verification process involves a review of the modelled pollutant concentrations against corresponding monitoring data to determine how well the air quality model has performed. Depending on the outcome it may be considered that the model has performed adequately and that there is no need to adjust any of the modelled results LAQM.TG22.

Alternatively, the model may perform outside of the ideal performance limits as stated by LAQM.TG22 (i.e. model agrees within +/-25% of monitored equivalent). There is then a need to check all the input data to ensure that it is reasonable and accurately represented in the air quality modelling process.

Where all input data, such as traffic data, emissions rates, and background concentrations have been checked and considered as reasonable, then the modelled results require adjustment to best align with the monitoring data. This may either be a single verification adjustment factor to be applied to the modelled concentrations across the study area, or a range of different adjustment factors to account for different zones in the study area e.g. major roads, local roads.

The air quality model was run to predict the 2022 annual mean road-NO_x contribution at nine roadside diffusion tubes located within the aforementioned Council areas, as presented in **Table B2**. Additional road links were incorporated into the 2022 Baseline traffic network such that a representative spread of monitoring locations could be included in the verification exercise.

Table B2: Details of diffusion tube monitoring locations included in model verification

Site ID	Site Name	Type	OS Grid Coordinates (m)		2022 Annual Mean (µg/m^3)
			X	Y	
Stafford_14	-	Other	390092	333159	18.4
Stafford_13	-	Other	390306	332968	19.9
Stafford_ST	-	Kerbside	390050	333270	27.4
Cannock_A460	A460 Rugeley	Roadside	403008	315932	16.8
Cannock_268 WS	268 Watling Street	Roadside	400726	307423	28.9
Cannock_268 WSB	268 Watling Street B	Roadside	400864	307385	38.7
Dudley_33	High Street, Pensnett	Roadside	390989	289254	25.0
Dudley_33ex	Birds Meadow, Pensnett	Roadside	391027	289410	15.4
Dudley_33Q	High Oak, Pensnett	Roadside	391060	289207	28.7

Modelled versus Monitored Annual Mean NO_2: Before Model Adjustment

The modelled annual mean road-NO_x outputs from the 2022 Base year scenario were converted to total annual mean NO_2 concentrations using Defra's NO_x to NO_2 calculator (v8.1) with the appropriate Defra background NO_2 value accounted for. The total modelled NO_2 annual mean concentrations were then compared to the equivalent 2022 local authority monitored values.

The outcomes of this comparison are summarised in **Table B3.**

Table B3: Initial comparison of modelled and monitored 2022 annual mean NO_2 concentrations (Units: µg/m^3)

Site ID	Modelled road-NO_x	Background NO_2	Total modelled NO_2	Total monitored NO_2	% Difference (model – monitor)
Stafford_14	9.7	9.9	15.3	18.4	-17.1%
Stafford_13	9.2	10.2	15.3	19.9	-23.4%
Stafford_ST	39.7	9.9	30.3	27.4	10.4%
Cannock_A460	7.9	7.7	12.1	16.8	-28.2%
Cannock_268 WS	25.4	13.5	26.7	28.9	-7.7%
Cannock_268 WSB	33.7	13.5	30.7	38.7	-20.6%
Dudley_33	11.0	13.5	19.4	25.0	-22.5%
Dudley_33ex	2.0	13.6	14.7	15.4	-4.5%
Dudley_33Q	9.0	13.3	18.2	28.7	-36.8%

The initial comparison of modelled and monitored NO_2 data in **Table B3** identified that the model was underpredicting at all but one (Stafford_ST) of the nine monitoring locations. Of these eight locations, six were demonstrating predicted annual mean concentrations within 25% of the equivalent monitored value and two within 10%. Sites 'Cannock_A460' and 'Dudley_33Q' returned predicted annual mean concentrations that were 28.2% and 36.8% below the equivalent monitored value.

It was evident that there was an overall tendency for the model to underpredict. This was confirmed by a statistical analysis of the unadjusted model results, which returned a fractional bias of +0.18 and an associated average model uncertainty (RMSE) of 5.5 µg/m^3. As such, it was deemed appropriate to progress verification to compare the modelled and monitored road-NO_x values, such that an appropriate modelled road-NO_x adjustment factor could be derived.

Given the spread of monitoring locations across three local authority areas, zonal verification and adjustment was completed at a local authority scale (i.e. three zones).

Comparison of Road-NO_x Contributions and Model Adjustment

Modelled road-NO_x concentrations at each site were compared with the corresponding monitored road-NO_x values in each verification zone to enable model adjustment factors to be derived.

A summary of the data comparison and derived model adjustment factors is presented in **Table B4**, with the respective plots for each zone presented as **Plates B1 to B3**, respectively.

Table B4: Summary of annual mean road-NO_x comparison and model adjustment factors (Units: µg/m^3)

Site ID	Verification zone	Monitored road-NO_x	Modelled road-NO_x (unadjusted)	Road-NO_x adjustment factor*	Modelled road-NO_x (adjusted)
Stafford_14	**Stafford**	15.7	9.7	0.94	9.2
Stafford_13		18.1	9.2		8.7
Stafford_ST		33.7	39.7		37.5
Cannock_A460	**Cannock**	16.8	7.9	1.42	11.3
Cannock_268 WS		30.0	25.4		36.1
Cannock_268 WSB		51.2	33.7		47.9
Dudley_33	**Dudley**	22.0	11.0	2.52	27.7
Dudley_33ex		3.3	2.0		5.1
Dudley_33Q		29.9	9.0		22.6

Notes:

* Road-NO_x adjustment factor derived from respective y=mx (intercept at 0) plot (dimensionless)

Plate B1: Modelled versus monitored road-NO_x for 'Stafford' verification zone (pre-adjustment)

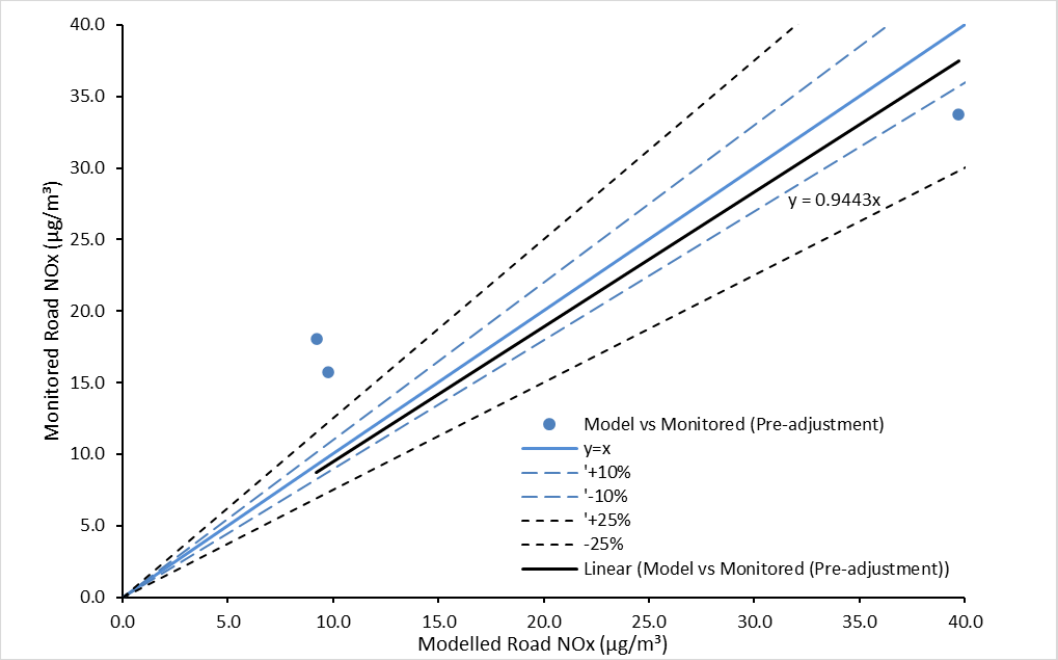


Plate B2: Modelled versus monitored road-NO_x for 'Cannock' verification zone (pre-adjustment)

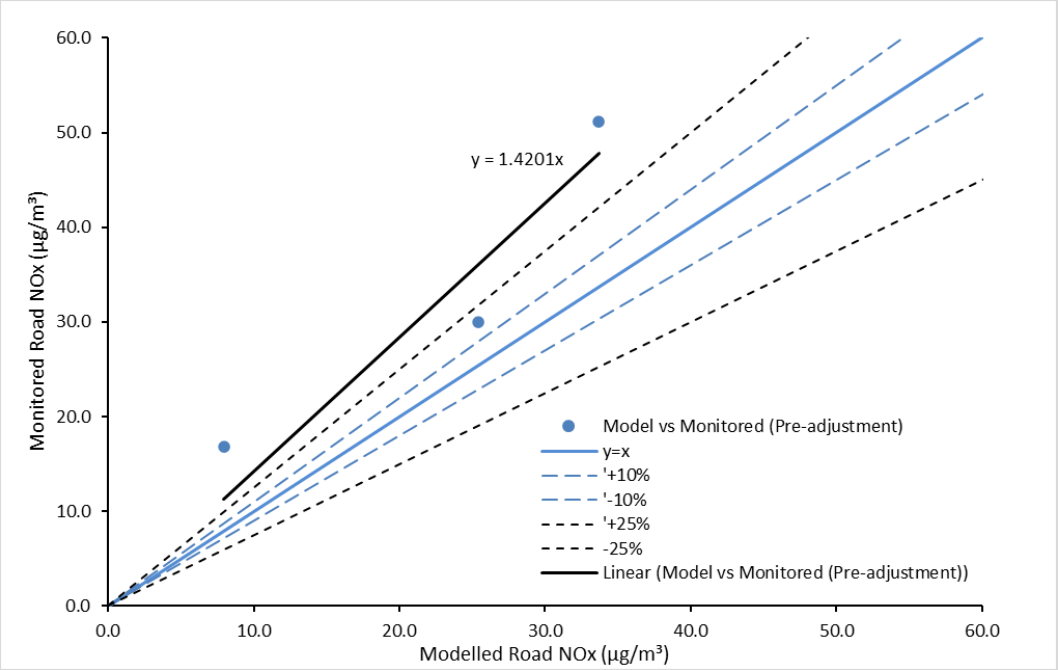
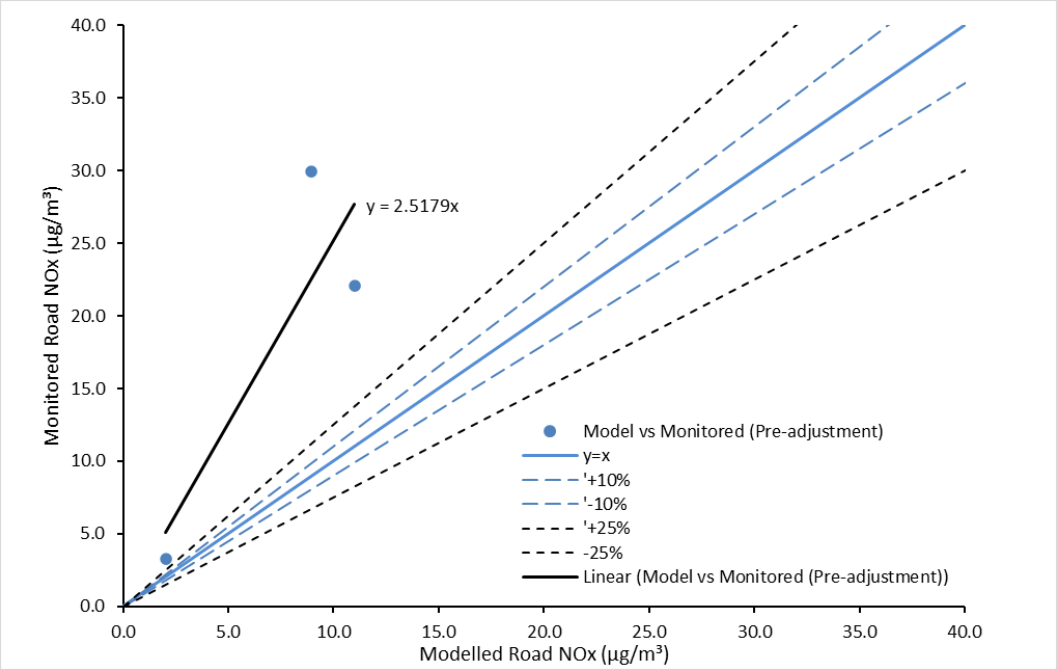


Plate B3: Modelled versus monitored road-NO_x for 'Dudley' verification zone (pre-adjustment)

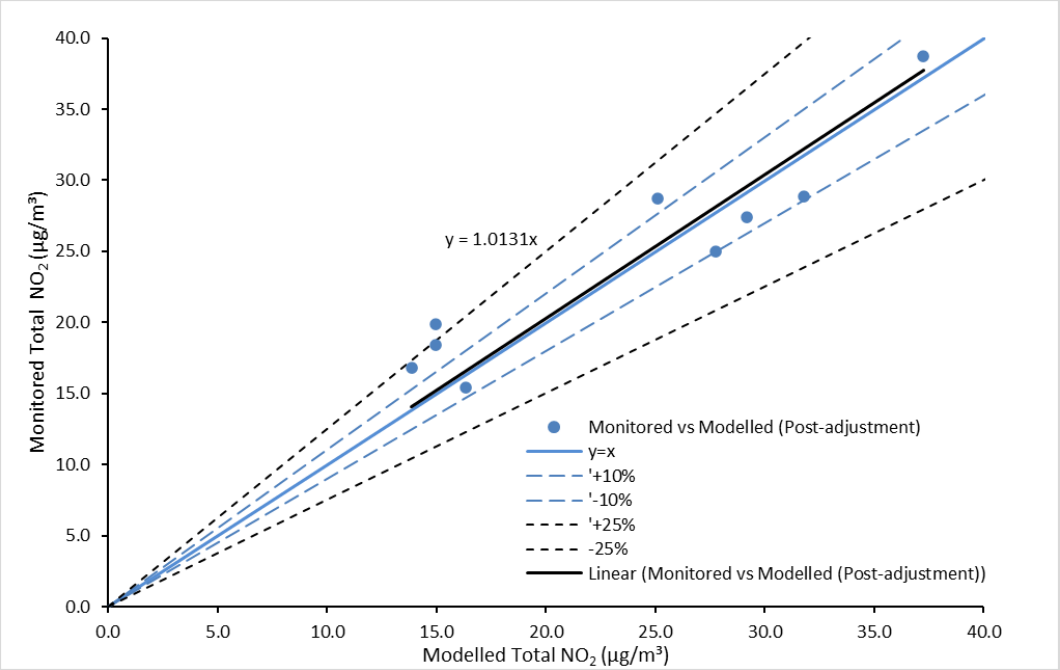


The adjusted annual mean modelled road-NO_x, as per **Table B4**, was subsequently converted to total annual mean NO_2 to allow comparison with the total monitored equivalent at each site. A summary of the adjusted model comparison with the monitored data is provided in **Table B5** and graphically presented in **Plate B4**.

Table B4: Summary of annual mean road-NO_x comparison and model adjustment factors (Units: µg/m³)

Site ID	Verification zone	Monitored NO_2 (µg/m³)	Adjusted Modelled NO_2 (µg/m³)	% Difference	RMSE (µg/m³)	Fractional bias
Stafford_14	**Stafford**	18.4	15.0	-18.7%	3.62	0.11
Stafford_13		19.9	15.0	-24.7%		
Stafford_ST		27.4	29.2	6.6%		
Cannock_A460	**Cannock**	16.8	13.9	-17.4%	2.52	0.02
Cannock_268 WS		28.9	31.8	10.0%		
Cannock_268 WSB		38.7	37.2	-3.8%		
Dudley_33	**Dudley**	25.0	27.8	11.1%	2.68	0.00
Dudley_33ex		15.4	16.4	6.2%		
Dudley_33Q		28.7	25.1	-12.5%		
				All Sites	**2.98**	**0.04**

Plate B4: Total adjusted modelled annual mean NO_2 versus monitored NO_2 at all monitoring sites



Following model adjustment, the modelled annual mean concentrations were all within +/-25%, with six within +/-15%, of the monitored equivalent.

As a whole, the data indicate that the adjusted model performs with no tendency to over or under predict when compared to the local authority monitoring results (fractional bias of 0.04) and the average model uncertainty across the study area was derived to derived to be 2.98 µg/m^3, which is within the ideal statistical tolerances as per LAQM.TG22. This represents a demonstrable improvement in model performance relative to the unadjusted model analysis.

The zonal road-NO_x adjustment factors were subsequently applied to all respective modelled road-NO_x outputs for both the base (2022) and future year (2042) scenarios. The location of each modelled receptor within the respective local authority was used to determine the appropriate adjustment factor to be applied.

Given that the 'Stafford' verification zone adjustment factor was slightly below 1.0 (0.94), an assumed factor of 1.0 was used for the purposes of the assessment, thereby ensuring a relatively conservative approach to deriving road-NO_x and total annual mean NO_2 concentrations at receptors within this zone.

Appendix C Air Quality Assessment Results Tables

This section contains the following tables:

Table C1: Cannock Chase SAC – modelled maximum values at each 10 m interval

Table C2: Cannock Extension Canal SAC – modelled maximum values at each 10 m interval

Table C3: Fens Pools SAC – modelled maximum values at each 10 m interval

Table C4: Pasturefields Salt Marsh SAC – modelled maximum values at each 10 m interval

Table C1: Cannock Chase SAC – modelled maximum values at each 10 m interval

Distance within SAC from road (m)	Maximum Annual Mean NO_x (µg/m^3)				Maximum Annual Mean NH_3 (µg/m^3)				Maximum Nitrogen Deposition Rate (kgN/ha/yr)				Maximum Acid Deposition Rate (keq/ha/yr)			
	2042 Alt Base	2042 With Plans	Difference	Difference as % of CL	2042 Alt Base	2042 With Plans	Difference	Difference as % CL	2042 Alt Base	2042 With Plans	Difference	Difference as % of CL	2042 Alt Base	2042 With Plans	Difference	Difference as % CL
0	12.1	12.6	0.5	**1.7%**	2.7	2.8	0.1	**6.2%**	32.3	32.7	0.4	**3.6%**	2.58	2.61	0.03	**2.0%**
10	9.7	9.9	0.2	0.8%	2.5	2.5	0.0	**2.9%**	31.0	31.3	0.2	**2.3%**	2.49	2.51	0.02	**1.3%**
20	9.0	9.2	0.2	0.6%	2.4	2.4	0.0	**2.0%**	30.3	30.5	0.2	**1.5%**	2.44	2.45	0.01	0.8%
30	9.0	9.0	0.1	0.4%	2.3	2.4	0.0	**1.5%**	30.0	30.1	0.1	**1.1%**	2.41	2.42	0.01	0.6%
40	8.9	9.0	0.1	0.3%	2.3	2.3	0.0	**1.2%**	29.8	29.9	0.1	0.9%	2.40	2.41	0.01	0.5%
50	8.8	8.9	0.1	0.3%	2.3	2.3	0.0	**1.0%**	29.6	29.7	0.1	0.8%	2.39	2.40	0.01	0.4%
60	8.8	8.9	0.1	0.3%	2.3	2.3	0.0	0.9%	29.5	29.6	0.1	0.6%	2.38	2.39	0.00	0.3%
70	8.8	8.8	0.1	0.2%	2.3	2.3	0.0	0.8%	29.5	29.5	0.1	0.5%	2.38	2.38	0.00	0.3%
80	8.7	8.8	0.1	0.2%	2.3	2.3	0.0	0.7%	29.4	29.4	0.1	0.5%	2.37	2.38	0.00	0.3%
90	8.7	8.8	0.1	0.2%	2.3	2.3	0.0	0.7%	29.4	29.4	0.1	0.5%	2.37	2.37	0.00	0.3%
100	8.7	8.7	0.1	0.2%	2.3	2.3	0.0	0.6%	29.3	29.4	0.0	0.4%	2.37	2.37	0.00	0.2%
110	8.6	8.7	0.1	0.2%	2.3	2.3	0.0	0.6%	29.3	29.3	0.0	0.4%	2.37	2.37	0.00	0.2%
120	8.6	8.7	0.1	0.2%	2.3	2.3	0.0	0.6%	29.3	29.3	0.0	0.3%	2.36	2.37	0.00	0.2%
130	8.6	8.7	0.0	0.2%	2.3	2.3	0.0	0.5%	29.3	29.3	0.0	0.3%	2.36	2.37	0.00	0.2%
140	8.6	8.6	0.0	0.2%	2.3	2.3	0.0	0.5%	29.2	29.3	0.0	0.3%	2.36	2.36	0.00	0.2%
150	8.6	8.6	0.0	0.1%	2.3	2.3	0.0	0.5%	29.2	29.3	0.0	0.3%	2.36	2.36	0.00	0.2%
160	8.5	8.6	0.0	0.1%	2.3	2.3	0.0	0.5%	29.2	29.2	0.0	0.3%	2.36	2.36	0.00	0.2%
170	8.5	8.6	0.0	0.1%	2.3	2.3	0.0	0.4%	29.2	29.2	0.0	0.3%	2.36	2.36	0.00	0.2%
180	8.5	8.5	0.0	0.1%	2.3	2.3	0.0	0.4%	29.2	29.2	0.0	0.3%	2.36	2.36	0.00	0.1%
190	8.5	8.5	0.0	0.1%	2.3	2.3	0.0	0.4%	29.2	29.2	0.0	0.3%	2.36	2.36	0.00	0.1%
200	8.5	8.5	0.0	0.1%	2.3	2.3	0.0	0.4%	29.2	29.2	0.0	0.2%	2.36	2.36	0.00	0.1%
Critical Level / Load			**30**				**1**				**10**				**1.285**	

Notes: Exceedances of 1% significance screening criterion are highlighted in **bold**.

Table C2: Cannock Extension Canal SAC – modelled maximum values at each 10 m interval

Distance within SAC from road (m)	Maximum Annual Mean NO_x (µg/m^3)				Maximum Annual Mean NH_3 (µg/m^3)				Maximum Nitrogen Deposition Rate (kgN/ha/yr)			
	2042 Alt Base	2042 With Plans	Difference	Difference as % of CL	2042 Alt Base	2042 With Plans	Difference	Difference as % CL	2042 Alt Base	2042 With Plans	Difference	Difference as % of CL
0	20.6	21.8	1.2	**4.0%**	2.9	3.0	0.1	**4.5%**	21.5	22.3	0.8	**8.0%**
10	19.7	20.6	0.8	**2.8%**	2.6	2.7	0.1	**3.1%**	19.9	20.5	0.6	**5.5%**
20	12.8	13.0	0.2	0.6%	2.0	2.0	0.0	0.7%	16.3	16.5	0.1	**1.3%**
30	12.3	12.4	0.1	0.4%	1.9	2.0	0.0	0.5%	16.0	16.1	0.1	0.8%
40	12.2	12.3	0.1	0.4%	1.9	1.9	0.0	0.4%	16.0	16.0	0.1	0.7%
50	12.2	12.3	0.1	0.3%	1.9	1.9	0.0	0.4%	15.9	16.0	0.1	0.7%
60	12.1	12.2	0.1	0.3%	1.9	1.9	0.0	0.4%	15.9	16.0	0.1	0.6%
70	12.1	12.2	0.1	0.3%	1.9	1.9	0.0	0.3%	15.9	15.9	0.1	0.6%
80	12.1	12.2	0.1	0.3%	1.9	1.9	0.0	0.3%	15.8	15.9	0.1	0.6%
90	12.0	12.1	0.1	0.3%	1.9	1.9	0.0	0.3%	15.8	15.9	0.1	0.6%
100	12.0	12.1	0.1	0.3%	1.9	1.9	0.0	0.3%	15.8	15.9	0.1	0.5%
110	12.0	12.1	0.1	0.3%	1.9	1.9	0.0	0.3%	15.8	15.9	0.0	0.5%
Critical Level / Load	**30**				**3**				**10**			

Notes: Exceedances of 1% significance screening criterion are highlighted in **bold**.

Table C3: Fens Pools SAC – modelled maximum values at each 10 m interval

Distance within SAC from road (m)	Maximum Annual Mean NO_x (µg/m^3)				Maximum Annual Mean NH_3 (µg/m^3)				Maximum Nitrogen Deposition Rate (kgN/ha/yr)			
	2042 Alt Base	2042 With Plans	Difference	Difference as % of CL	2042 Alt Base	2042 With Plans	Difference	Difference as % CL	2042 Alt Base	2042 With Plans	Difference	Difference as % of CL
10	25.1	26.3	1.2	**4.1%**	3.1	3.3	0.1	**4.8%**	22.0	22.8	0.8	**8.4%**
20	21.6	22.2	0.6	**2.1%**	2.6	2.6	0.1	**2.4%**	19.3	19.7	0.4	**4.2%**
30	20.0	20.4	0.5	**1.5%**	2.4	2.4	0.1	**1.7%**	18.3	18.6	0.3	**3.1%**
40	19.0	19.4	0.4	**1.2%**	2.3	2.3	0.0	**1.4%**	17.7	17.9	0.3	**2.5%**
50	18.2	18.4	0.3	0.9%	2.2	2.2	0.0	**1.1%**	17.1	17.3	0.2	**1.9%**
60	17.1	17.2	0.2	0.6%	2.1	2.1	0.0	0.7%	16.1	16.2	0.1	**1.1%**
70	17.0	17.1	0.2	0.5%	2.1	2.1	0.0	0.6%	16.0	16.1	0.1	**1.0%**
80	17.0	17.1	0.1	0.5%	2.1	2.1	0.0	0.5%	15.9	16.0	0.1	0.9%
90	17.0	17.0	0.1	0.4%	2.0	2.1	0.0	0.5%	15.8	15.9	0.1	0.9%
100	16.9	17.0	0.1	0.4%	2.0	2.0	0.0	0.5%	15.8	15.9	0.1	0.8%
110	16.9	17.0	0.1	0.4%	2.0	2.0	0.0	0.5%	15.8	15.9	0.1	0.8%
120	16.8	16.9	0.1	0.4%	2.0	2.0	0.0	0.4%	15.8	15.8	0.1	0.7%
130	16.8	16.9	0.1	0.3%	2.0	2.0	0.0	0.4%	15.8	15.8	0.1	0.7%
140	16.8	16.9	0.1	0.3%	2.0	2.0	0.0	0.3%	15.7	15.8	0.1	0.6%
150	16.8	16.8	0.1	0.3%	2.0	2.0	0.0	0.3%	15.7	15.8	0.1	0.6%
160	16.7	16.8	0.1	0.2%	2.0	2.0	0.0	0.3%	15.7	15.7	0.1	0.5%
170	16.7	16.8	0.1	0.2%	2.0	2.0	0.0	0.3%	15.6	15.7	0.1	0.5%
Critical Level / Load	**30**				**3**				**10**			

Notes: Exceedances of 1% significance screening criterion are highlighted in **bold**.

Table C4: Pasturefields Salt Marsh SAC – modelled maximum values at each 10 m interval

Distance within SAC from road (m)	Maximum Annual Mean NO_x (µg/m^3)				Maximum Annual Mean NH_3 (µg/m^3)				Maximum Nitrogen Deposition Rate (kgN/ha/yr)			
	2042 Alt Base	2042 With Plans	Difference	Difference as % of CL	2042 Alt Base	2042 With Plans	Difference	Difference as % CL	2042 Alt Base	2042 With Plans	Difference	Difference as % of CL
0	8.8	8.8	0.0	0.1%	2.5	2.5	0.0	0.1%	17.6	17.6	0.0	0.1%
10	8.7	8.8	0.0	0.1%	2.5	2.5	0.0	0.1%	17.6	17.6	0.0	0.1%
20	8.7	8.8	0.0	0.1%	2.5	2.5	0.0	0.1%	17.6	17.6	0.0	0.1%
30	8.7	8.7	0.0	0.1%	2.5	2.5	0.0	0.1%	17.6	17.6	0.0	0.1%
40	8.6	8.7	0.0	0.1%	2.5	2.5	0.0	0.1%	17.6	17.6	0.0	0.1%
50	8.6	8.6	0.0	0.1%	2.4	2.5	0.0	0.1%	17.5	17.6	0.0	0.1%
60	8.6	8.6	0.0	0.1%	2.4	2.4	0.0	0.1%	17.5	17.5	0.0	0.1%
70	8.5	8.6	0.0	0.1%	2.4	2.4	0.0	0.1%	17.5	17.5	0.0	0.1%
80	8.5	8.6	0.0	0.1%	2.4	2.4	0.0	0.1%	17.5	17.5	0.0	0.1%
90	8.5	8.5	0.0	0.1%	2.4	2.4	0.0	0.1%	17.5	17.5	0.0	0.1%
100	8.5	8.5	0.0	0.1%	2.4	2.4	0.0	0.1%	17.5	17.5	0.0	0.1%
110	8.5	8.5	0.0	0.1%	2.4	2.4	0.0	0.1%	17.5	17.5	0.0	0.1%
120	8.4	8.5	0.0	0.1%	2.4	2.4	0.0	0.1%	17.4	17.5	0.0	0.1%
130	8.4	8.4	0.0	0.1%	2.4	2.4	0.0	0.1%	17.4	17.4	0.0	0.0%
140	8.4	8.4	0.0	0.0%	2.4	2.4	0.0	0.1%	17.4	17.4	0.0	0.0%
150	8.4	8.4	0.0	0.0%	2.4	2.4	0.0	0.0%	17.4	17.4	0.0	0.0%
160	8.4	8.4	0.0	0.0%	2.4	2.4	0.0	0.0%	17.4	17.4	0.0	0.0%
170	8.3	8.3	0.0	0.0%	2.4	2.4	0.0	0.0%	17.4	17.4	0.0	0.0%
180	8.2	8.3	0.0	0.0%	2.4	2.4	0.0	0.0%	17.4	17.4	0.0	0.0%
190	8.2	8.2	0.0	0.0%	2.4	2.4	0.0	0.0%	17.4	17.4	0.0	0.0%
200	8.2	8.2	0.0	0.0%	2.4	2.4	0.0	0.0%	17.4	17.4	0.0	0.0%
Critical Level / Load		**30**				**1**				**10**		

Appendix D Middlemarch Project Brief (March 2023)

MIDDLEMARCH

Creation of an Air Pollution Evidence Base Brief to Support Local Plan HRA

Staffordshire, Wolverhampton, Walsall, Sandwell and Dudley

A Report to: South Staffordshire District Council
c/o the Combined Partnership Authorities
Report Number: RT-MME-159172-01, Rev B
Date: March 2023

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Quality Assurance

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10/03/2023	FINAL, Rev B	Chris Walsh BSc (Hon), MSc (Hon) (Principal Consultant)	Louise Fox BSc (Hon), GDP Law, MSc (Hon) (Principal Consultant)	

Declaration of Compliance

This study has been undertaken in accordance with British Standard 42020:2013 "Biodiversity, Code of Practice for Planning and Development". The information which we have prepared is true, and has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management's Code of Professional Conduct. We confirm that the opinions expressed are our true and professional bona fide **opinions.**

Disclaimer

The contents of this report are the responsibility of Middlemarch Environmental Ltd. It should be noted that, whilst every effort is made to meet the client's brief, no site investigation can ensure complete assessment or prediction of the natural environment. Middlemarch Environmental Ltd accepts no responsibility or liability for any use that is made of this document other than by the client for the purposes for which it was originally commissioned **and prepared.**

Validity of Data

The findings of this study are valid for a period of 24 months from the date of survey. If works have not commenced by this date, an updated site visit should be carried out by a suitably qualified ecologist to assess any changes in the habitats present on site, and to inform a review of the conclusions and recommendations made.

Non-Technical Summary

Project Background

In October 2022, Middlemarch Environmental were instructed by South Staffordshire District Council (SSDC) to prepare a brief; a detailed step by step methodology of how SSDC and one or more partnership Local Planning Authorities (hereafter referred to collectively as the 'partnership authorities') could establish a scientific and robust evidence base to determine the likely air pollution impacts (via increased traffic generation) on several European sites should emerging Local Plan/s be adopted.

Footprint Ecology's October 2022 Habitats Regulations Assessment (HRA) of the South Staffordshire Local Plan Review 2018-2038 (Publication Plan, Regulation 19) concluded that without additional evidence, and in line with the precautionary principle, the reasonable possibility of the proposed allocations resulting in traffic growth sufficient to have a significant impact upon several European sites via increased deposition of nitrogen (NO_x and NH_3) could not be screened out.

This work is, in the first instance, to support the undertaking of the Local Plan Habitats Regulations Assessment/s for SSDC, for which Footprint Ecology Ltd has already been engaged.

However, the evidence base that is to be established is planned to be sufficient (in its geographic scope and scale of considered in-combination traffic growth) to allow it to be used as an evidence base to support the HRAs of the other partnership authorities over several years, as proposed allocations within Local Plan/s move forward.

This brief does not consider traffic generation created as a result of agricultural development or their subsequent operations.

This brief clarifies in detail the European sites, road locations, methodology and thresholds by which further screening will be undertaken.

It is important to note that if the screening threshold for a European site is exceeded, this does not result in the conclusion that increased air pollution will have a significant impact upon the qualifying features of the European site, the habitats or ecological functions upon which the qualifying feature rely or else prevent or otherwise impede the delivery of the site/s conservation objectives. Rather, it displays that there is a likelihood of such an impact occurring and that an Appropriate Assessment must be undertaken to conclude if the level of atmospheric deposition of nitrogen (and the locations within the statutory boundaries where it is deposited) is likely to result in a significant impact upon the integrity of the European site.

For any European site where possible impacts cannot be screened out, this brief also outlines an approach by which an Appropriate Assessment can be undertaken to determine if the available nitrogen deposition volume and location is likely to result in a significant impact upon the integrity of the European site/s.

Natural England's consideration and input into this brief was sought and written comments were provided on the 8th of February 2023. Subsequently a meeting was held between Natural England and representatives of the partnership authorities on the 14th of February 2023 where further recommendations were provided. All recommendations and further considerations raised by Natural England have been incorporated into this revised Evidence Base Brief (Rev B).

The relevant European sites to be assessed are depicted in Drawing C159172-03 (see Map Annex RT-MME-159172-02). They comprise of all Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Ramsar Wetlands of International Importance land parcels where:

- The qualifying habitats or criterion for selection of the European site are known to be impacted by increased deposition of nitrogen;
- Increased deposition of nitrogen is known to impact on habitats on which the qualifying species or criterion for selection of the European site rely;
- The site is within the SSDC local plan area or the local plan area of another partner authority; or,
- The site is within 10km of the boundaries of these areas or has been identified by Natural England as requiring consideration.

The European sites considered within this brief are:

- Cannock Chase SAC;
- Pasturefields Salt Marsh SAC;
- West Midlands Mosses SAC;
- Midlands Meres and Mosses Phase 1 Ramsar Site;
- Midlands Meres and Mosses Phase 2 Ramsar Site;
- Mottey Meadows SAC;
- Cannock Extension Canal SAC;
- Fens Pools SAC,
- Peak District Dales SAC, and
- Bees Nest and Green Clay Pits SAC

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1. Identification of Assessment Locations

1.1. Introduction

1.1.1. The Department of Transport's Transport Analysis Guidance[1] states *"Beyond 200m the contribution of vehicle emissions from roadside to local pollution levels is not significant"*.

1.1.2. Additionally, section 5.3.7 of the Institute of Air Quality Management (IAQM) 2020 guidance on the assessment of air quality impacts on designated nature conservation sites[2] concludes *"For strategic planning, where substantial changes in traffic volumes are being considered, there is the potential for wider-scale impacts, which can potentially affect the future background concentrations, as well as concentrations within 200m of individual roads within the affected network."*

1.1.3. The 200m atmospheric deposition distance for vehicular emissions is also recognised by Natural England in their 2018 guidance (Approach to advising competent authorities on the assessment of road traffic emission under the Habitats Regulations", (NEA001-2018))[3]. The guidance advises that the first step is to identify the spatial distribution of qualifying features within a designated site and that if there are no qualifying features sensitive to air pollution within 200m of a road, then no further assessment is required.

1.1.4. Natural England's 2018 guidance determines that a Competent Authority should consider the implications of a plan or project against three 'nitrogen thresholds' when undertaking HRA screening.

1.1.5. These thresholds are:

- An increase (on any single road) in Annual Average Daily Traffic (AADT) of 1000 domestic vehicles or greater;
- An increase (on any single road) in AADT of 200 HGV or greater; or
- That the predicted pollution concentration of nutrient deposition for the oxides of nitrogen (NO_x), ammonia (NH_3) or nitrogen (N), due to vehicular emissions and/or direct emissions from the development is:
  - Equal to or greater than 1% of the pollutants Critical Level ($\mu g/m^{3\text{-}s}$), or
  - Equal to or greater than 1% of the site's Nitrogen Critical load ($Kg/N/ha^{1}/year^{1}$).

1.1.6. It should be noted that even if a plan exceeds either, or both AADT thresholds it may still be screened out if the level of modelled emissions and nitrogen deposition are shown to be less than 1% of the Nitrogen Critical Load of the European site under consideration.

1.1.7. Additionally, the impacts of increased air pollution on European sites due to traffic growth will also be determined in line with the Institute of Air Quality Management 2020

[1] Gov.uk, Transport analysis guidance, (2021), Available at: https://www.gov.uk/guidance/transport-analysis-guidance-tag
[2] Institute of Air Quality Management, (2020), A guide to the assessment of air quality impacts on designated nature conservation sites, V1.1, Available at: https://iaqm.co.uk/text/guidance/air-quality-impacts-on-nature-sites-2020.pdf
[3] Natural England (2018), approach to advising competent authorities on the assessment of road traffic emission under the Habitats Regulations, NEA001-2018 , Available at: http://publications.naturalengland.org.uk/publication/4720542048845824

methodology[4] and using relevant critical load levels derived from the UK Air Pollution Information System (APIS) website.

1.2. Identification of Roads where Significant Traffic Growth May Occur

1.2.1. Drawing C159172-01 (see Map Annex RT-MME-159172-02) illustrates all roads within 200m of the boundary of all parcels of the ten European sites in consideration.

1.2.2. Consistent with the categories used by Footprint Ecology[5] the roads have been split into four different categories:

- *Motorways;*
- *A Roads;*
- *B Roads; or*
- *Unclassified/Minor Roads.*

1.2.3. For the majority of '*unclassified and minor roads',* due to their reduced traffic capacity and lack of connectivity between settlements and to areas of employment or services (i.e., medical, schools, provisioning, etc.) it can be considered highly unlikely the partner authorities land use allocations (either alone or in combination with partners plans) could result in a significant AADT increase (see Section 1.1.5).

1.2.4. As such (with some key exceptions) it is recommended that the majority of '*unclassified and minor roads'* can be screened out from the need for assessment of traffic growth.

1.2.5. Table 1.1. identifies what is considered to represent the key roads within 200m of the land parcels of European sites in consideration. For each key road a Recommended Assessment Point (RAP) has been determined.

[4] Institute of Air Quality Management, (2020), A guide to the assessment of air quality impacts on designated nature conservation sites, V1.1, Available at: https://iaqm.co.uk/text/guidance/air-quality-impacts-on-nature-sites-2020.pdf
[5] Footprint Ecology, (2022), HRA of the South Staffordshire Local Plan Review 2018-2038 (publication Plan, Regulation 19), Available at: https://www.sstaffs.gov.uk/planning/local-plan-review-3.cfm

European Site Name	Land Parcel (If Applicable)	Road Type	Road Name	Location/s (Grid Ref)	RAP Ref Number
Cannock Chase SAC	N/A	A	A513	SJ 97863 20801	RAP 1
		A	A460 (Rugeley Rd)	SK 02167 14729	RAP 2
		Unclassified/Minor	Camp Rd	SJ 97715 17067	RAP 3
Pasturefields Salt Marsh SAC	N/A	A	A51	SJ 99458 24888	RAP 4
West Midlands Mosses SAC and Midlands Meres and Mosses Ramsar Phase 1 Site	Chartley Moss	A	A518	SK 02143 28927	RAP 5
	Wybunbury Moss	B	B5071	SJ 69555 49964	RAP 22
Midlands Meres and Mosses Phase 2 Ramsar Site	Aqualate Mere	Unclassified/Minor	Walkley Bank	SJ 75639 20961	RAP 6
		Unclassified/Minor	Guild Lane	SJ 78883 20220	RAP 7
	Cop Mere	Unclassified/Minor	Un-named Rd to East of Cop Mere	SJ 80303 29457	RAP 8
	Black Firs & Cranberry Bog	A	A531 (Newcastle Rd)	SJ 74654 50071	RAP 23
		Unclassified/Minor	Post Office Lane	SJ 74778 50478	RAP 24
	Oakhanger Moss	Motorway	M6	SJ 77091 55066	RAP 25
Mottey Meadows SAC	N/A	Unclassified/Minor	Marston Rd	SJ 84388 13684	RAP 9
Cannock Extension Canal SAC	N/A	A	A5 (Watling St)	SK 02021 06915	RAP 10
		B	B4154 (Lime Ln)	SK 02005 06290	RAP 11
Fens Pools SAC	N/A	A	A4101 (High Street)	SO 92068 89240	RAP 12
		A	A461 (Stourbridge Rd)	SO 92407 88622	RAP 13
Midlands Meres and Mosses Ramsar Phase 1 Site	Betley Mere	Unclassified/Minor	Cracow Moss	SJ 75260 47444	RAP 14

Table 1.1: Roads to be Assessed (Continues)

European Site Name	Land Parcel (if applicable)	Road Type	Road Name	Location/s (Grid Ref)	RAP Ref Number
Peak District Dales SAC	N/A	Unclassified/Minor	The Pinch	SK 1461 5507	RAP 15
		Unclassified/Minor	Liffs Rd	SK 1579 5673	RAP 16
		Unclassified/Minor	Larkstone Lane	SK 1003 5411	RAP 17
		Unclassified/Minor	-	SK 1225 5156	RAP 18
		Unclassified/Minor	-	SK 1336 5042	RAP 19
		Unclassified/Minor	Leek Rd	SK 0984 5567	RAP 20
		Unclassified/Minor	Parwick Lane	SK 1942 5620	RAP 21
Bees Nest & Green Clay Pits SAC	N/A	Unclassified/Minor	Manystones Lane	SK 24035 54943	RAP 26

Table 1.1: (Continued) Roads to be Assessed

1.2.6. In total it is considered that a robust screening assessment could be undertaken by determining the likely impact at 26 RAPs across the total area of consideration. The location of each RAP is depicted on Drawing C159172-02 (Map Annex RT-MME-159172-02).

1.2.7. However, it is considered that there is rationale to reduce the total RAPs down to ten locations without a material reduction in the robustness of the evidence base.

1.2.8. At the evidence base's inception stage, it appears highly unlikely that the adoption of land usage allocations within any of the partnership authorities' local plans (either alone or in combination) could result in a significant impact (as a result of increased nitrogen deposition derived from traffic growth) upon:

- Chartley Moss;
- Aqualate Mere;
- Mottey Meadows;
- Betely Mere;
- Wynbunbury Moss;
- Black Firs & Cranberry Bog
- Bees Nest & Green Clay Pits SAC or
- Any land parcel of the Peak District Dales SAC.

1.2.9. The rationale for Screening out these areas from the need for further assessment are provided in sections 1.3 to 1.10.

1.2.10. Whilst it is recommended that these land parcels could be removed from the need for further assessment (without degrading the robustness of the evidence base produced) it is important that discussions with the Appropriate Authority (Natural England) are undertaken on this matter, and due regard given to their considerations before determining the final approach.

1.3. Chartley Moss, Rationale for Scoping Out

1.3.1. Within 200m of Chartley Moss (which constitutes a land parcel of both West Midlands Mosses SAC and Midlands Meres and Mosses Ramsar Phase 1 Site) it is considered that adoption of land use allocations by the partnership authorities local plans could only result in significant traffic growth on the A518 (RAP 5).

1.3.2. This is due to all other roads within 200m either only:

- Providing access to private residences, or
- Being a single tracked road, which does not act as a link between settlements or a route to the provision of services.

1.3.3. It is considered highly unrealistic that the adoption of land use allocations (from one or more partnership local plans) could result in an increase in AADT of 1000 or greater domestic vehicles or 200 or greater HGVs along a single-track road, which does not provide a clear link between two settlements or provide a route linking areas or residential growth to employment or services.

1.3.4. As such the A518 is the only key road identified in Table 1.1.

1.3.5. Section 4.19 of Natural England's 2018 guidance (see Section 1.1.3) states:

- *"An early understanding of the spatial distribution of features within a site can help to decide whether or not appropriate assessment will be required*… [if] *any sensitive qualifying features are not present within the area to be affected by emissions (and Natural England's advice is that there is no conservation objective to restore the features to that area), it will be relatively straightforward to ascertain that the plan or project poses no credible air quality risk to it*."

1.3.6. The only habitat within the SAC and Ramsar site which lies within 200m of the A518 is an area of broad-leaved deciduous woodland within Parcel 5 of the underlying Chartley Moss SSSI[6]. Broad-leaved deciduous woodland is not a qualifying feature of the SAC designation, a criterion for its selection as a Ramsar site or a habitat upon which the species (which form its criterion for Ramsar selection) rely.

[6] Natural England, Chartley Moss SSSI, Parcel 5 'RAILWAY – BUFFER', Site information, Available at: https://designatedsites.naturalengland.org.uk/UnitDetail.aspx?UnitId=1022792

1.3.7. In line with Natural England's 2018 guidance, no further assessment should be required on the Chartley Moss land parcel of the West Midlands Mosses SAC and the Midlands Meres and Mosses Ramsar Phase 1 Site.

1.4. Aqualate Mere, Rational for Scoping Out

1.4.1. No 'A' or 'B' roads lie within 200m of the boundary of Aqualate Mere.

1.4.2. Only two minor roads (Walkley Bank and Guild Lane) lie within 200m of the site boundary.

1.4.3. Both roads are single track along their entire length.

1.4.4. Walkley Bank (RAP 6) links the hamlets of Meretown and Forton.

1.4.5. Guild Lane (RAP 7) does not provide a clear link between any settlements or provide a route linking areas or residential growth to employment or services, rather it functions primarily to provide access to a small capacity car park by which members of the public can access Aqualate Mere.

1.4.6. Due to their inherent low traffic capacity and their lack of obvious connectivity between notable settlements, places of employment or services, it is considered highly unrealistic to consider that the adoption of land use allocations (from one or more local plans) would result in an increase in AADT of 1000 (or greater) domestic vehicles or 200 (or greater) HGVs on either of the minor roads within 200m of the boundary of Aqualate Mere.

1.4.7. Section 4.17 of the Natural England's 2018 Guidelines (see Section 1.1.3) states:

- *"Usually, only those European sites present within 200m of the edge of a road on which a plan or project will generate traffic will need to be considered when checking for the likelihood of significant effects from road traffic emissions."*

1.4.8. Based on the information available it appears highly unlikely that the future adoption of partnership local authorities' local plans (alone or in combination) could result in a measurable increase in annual traffic generation on either Walkley Bank or Guild Lane.

1.4.9. In line with Natural England's 2018 guidelines[7] no further assessment should be required on the Aqualate Mere land parcel of the Midlands Meres and Mosses Phase 2 Ramsar Site.

[7] [7] Natural England (2018), approach to advising competent authorities on the assessment of road traffic emission under the Habitats Regulations, NEA001-2018 , Available at: http://publications.naturalengland.org.uk/publication/4720542048845824

1.5. Mottey Meadows, Rational for Scoping Out

1.5.1. No ‘A’ or ‘B’ roads lie within 200m of the boundary of Mottey Meadows SAC.

1.5.2. Only two minor roads (Marston Road and Gay Lane) lie within 200m of the site boundary.

1.5.3. Both roads are single track along their entire length.

1.5.4. Gay Lane only provides access to a single private residence.

1.5.5. Marston Road (RAP 9) links the village of Wheaton Aston to the hamlet of Marston.

1.5.6. Due to their inherent low traffic capacity and their lack of obvious connectivity between notable settlements and places of employment or services, it is highly unrealistic to consider that the adoption of land use allocations (from one or more of the partnership authorities’ local plans) would result in an increase in AADT of 1000 (or greater) domestic vehicles or 200 (or greater) HGVs on either of the minor roads within 200m of the boundary of Mottey Meadows.

1.5.7. Based on the information available it appears highly unlikely that the future adoption of partnership local authorities’ local plans (alone or in combination) could result in a measurable increase in annual traffic generation on either Gay Lane or Marston Road.

1.5.8. In line with Natural England’s 2018[8] guidelines no further assessment should be required on Mottey Meadows SAC.

1.6. Betley Mere, Rational for Scoping Out

1.6.1. Betley Mere (a land parcel of the Midlands Meres and Mosses Ramsar Phase 1 Site) does not lie within a partnership authorities’ boundary but does lie within 10km of a jurisdictive boundary.

1.6.2. No ‘A’ or ‘B’ roads lie within 200m of the Betley Mere land parcel of the Midlands Meres and Mosses Ramsar Phase 1 Site.

1.6.3. Only one minor road (Cracow Moss) lies within 200m of the site boundary.

1.6.4. Cracow Moss (RAP 14) only provides access to a small number of scattered private residences.

1.6.5. The road is single track along its entire length.

[8] Natural England (2018), approach to advising competent authorities on the assessment of road traffic emission under the Habitats Regulations, NEA001-2018 , Available at: http://publications.naturalengland.org.uk/publication/4720542048845824

1.6.6. Due to its inherent low traffic capacity and lack of any connectivity between notable settlements and places of employment or services, it is highly unrealistic to consider that the adoption of land use allocations (from one or more of the partnership authorities' local plans) would result in any increase in AADT on Cracow Moss.

1.6.7. In line with Natural England's 2018 guidelines[9] no further assessment should be required on the Betley Mere land parcel of the Midlands Meres and Mosses Ramsar Phase 1 Site.

1.7. Wynbunbury Moss, Rational for Scoping Out

1.7.1. No part of the Wynbunbury Moss (a land parcel of the Midlands Meres and Mosses Phase 1 Ramsar Site) lies within a partnership authorities' boundary, or within 10km of any jurisdictive boundary.

1.7.2. No 'A' roads lie within 200m of the boundary of Wynbunbury Moss and only one B road, Stock Lane is present (the B5071). Where Stock Lane is present within 200m of the site it is either at the very limit of the 200m deposition distance buffer or it is separated from the Ramsar site by intervening residential development (the village of Wybunbury). It is considered that the residential developments would likely act as anthropogenic physical barriers, notably reducing the dispersal distance of any air pollution, nitrogen deposition and acidification.

1.7.3. Stock Lane (RAP 22) links the village of Wynbunbury to the village of Shavington.

1.7.4. Based on the information available it appears highly unlikely that the future adoption of partnership local authorities' local plans (alone or in combination) could result in a measurable increase in annual traffic generation between the villages of Wynbunbury to the village of Shavington.

1.7.5. In line with Natural England's 2018 guidelines[10] no further assessment should be required on the Wynbunbury Moss land parcel of the Midlands Meres and Mosses Phase 1 Ramsar Site.

1.8. Black Firs & Cranberry Bog, Rational for Scoping Out

1.8.1. No part of the Black Firs and Cranberry Bog (a land parcel of the Midlands Meres and Mosses Phase 2 Ramsar Site) lies within a partnership authorities' boundary, or within 10km of any jurisdictive boundary.

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[9] Natural England (2018), approach to advising competent authorities on the assessment of road traffic emission under the Habitats Regulations, NEA001-2018 , Available at: http://publications.naturalengland.org.uk/publication/4720542048845824

[10] [10] Natural England (2018), approach to advising competent authorities on the assessment of road traffic emission under the Habitats Regulations, NEA001-2018 , Available at: http://publications.naturalengland.org.uk/publication/4720542048845824

1.8.2. Only one A road, Newcastle Rd (the A531) and one B road (B5500) lies within 200m of the boundary of the site.

1.8.3. Newcastle Rd (RAP 23) links several small villages and hamlets, Madeley Heath, Bowsey Wood, Wrinehil, Betley, New Thorntree, Hough, Shavington and Blakelow. It is considered highly unlikely that the future adoption of partnership local authorities' local plans (alone or in combination) could result in a measurable increase in annual traffic generation between these villages.

1.8.4. The B5500 runs north of the site and only likes the hamlet of New Thorntree to the hamlet of Balterley.

1.8.5. Only two minor roads are within 200m of the boundary of the site, Waybutt Lane and Post Office Lane.

1.8.6. Waybutt Lane provides access (off of the A531) to a single farm and the village of Chorlton.

1.8.7. Post Office Lane (RAP 24) provides an alternative access from the hamlet of New Thorntree to the B5500 and is single track along the majority of its length.

1.8.8. Based on the information available it appears highly unlikely that the future adoption of partnership local authorities' local plans (alone or in combination) could result in a measurable increase in annual traffic generation between the hamlets of New Thorntree and Balterley or result in additional trips to/from the village Chorlton.

1.8.9. In line with Natural England's 2018 guidelines[11] no further assessment should be required on the Black Firs and Cranberry Bog land parcel of the Midlands Meres and Mosses Phase 2 Ramsar Site.

1.9. Bees Nest & Green Clay Pits SAC, Rational for Scoping Out

1.9.1. No part of the Bees Nest and Green Clay Pits SAC lies within a partnership authorities' boundary, but it does lie within 10km of a jurisdictive boundary.

1.9.2. No 'A' or 'B' roads lie within 200m of the SAC boundary.

1.9.3. Only two minor roads, Manystones Lane (RAP 26) and Wirksworth Dale lie within 200m of the SAC boundary.

1.9.4. Both roads are single track along their entire length. Wirksworth Dale provides access to several fields. Manystone Lane links the villages of Bassington and Bolehill.

1.9.5. Based on the information available it appears highly unlikely that the future adoption of partnership local authorities' local plans (alone or in combination) could result in a

[11] [11] Natural England (2018), approach to advising competent authorities on the assessment of road traffic emission under the Habitats Regulations, NEA001-2018 , Available at: http://publications.naturalengland.org.uk/publication/4720542048845824

measurable increase in annual traffic generation to the fields along Wirkworth Dale or between the villages of Bassington and Bolehill.

1.9.6. In line with Natural England's 2018 guidelines no further assessment should be required on the Bees Nest and Green Clay Pits SAC.

1.10. Peak District Dales SAC, Rational for Scoping Out

1.10.1. No part of the Peak District Dales SAC lies within a partnership authorities' boundary, but several land parcels are within 10km of a jurisdictive boundary.

1.10.2. In total 17 land parcels (of varying sizes) lie within 10km of the jurisdictive boundary of a partnership authority.

1.10.3. No 'A' or 'B' roads lie within 200m of any of the land parcels of the Peak District Dales SAC which are partly, or wholly, within 10km of a jurisdictive boundary of a partnership authority.

1.10.4. Whilst a large number of roads lie within 200m of the 17 land parcels, the vast majority only provide access to isolated private residences and farms or are farm tracks providing access to fields and so are not public highways.

1.10.5. It is considered that seven key roads lie within 200m of the land parcels considered (The Pinch, Liffs Road, Larkstone Lane, Leek Road, Parwick Lane and two unnamed roads). All are minor roads.

1.10.6. All seven roads are single track along their entire length.

1.10.7. None of the roads appear to function as a link between any notable settlements, to connect a settlement/s with places of employment (with the exception of agricultural access) or services.

1.10.8. Due to their inherent low traffic capacity and their lack of obvious connectivity between notable settlements and places of employment or services, it is highly unrealistic to consider that the adoption of land use allocations (from one of more of the partnership authorities' local plans) would result in an increase in AADT of 1000 (or greater) domestic vehicles or 200 (or greater) HGVs on any of the identified seven key roads within 200m of any of the land parcels of the Peak District Dales SAC.

1.10.9. Based on the information available, it appears highly unlikely that the future adoption of partnership local authorities' local plans (alone or in combination) could result in a measurable increase in annual traffic generation on any of the key roads.

1.10.10. In line with Natural England's 2018[12] guidelines no further assessment should be required on the Peak District Dales.

[12] Natural England (2018), approach to advising competent authorities on the assessment of road traffic emission under the Habitats Regulations, NEA001-2018 , Available at: http://publications.naturalengland.org.uk/publication/4720542048845824

1.11. Recommended Assessment Locations

1.11.1. Based upon the rational provided above (see Sections 1.3 - 1.10), and assuming that consultation with Natural England is completed (and they provide written conformation confirming that they concur that the reasons for removing several European sites from further consideration to be robust), the revised list of RAP's is detailed below in Table 1.2.

European Site Name	Land Parcel (If Applicable)	Road Type	Road Name	Location/s (Grid Ref)	RAP Ref Number
Cannock Chase SAC	N/A	A	A513	SJ 97863 20801	RAP 1
		A	A460 (Rugeley Rd)	SK 02167 14729	RAP 2
		Unclassified/Minor	Camp Rd	SJ 97715 17067	RAP 3
Pasturefields Salt Marsh SAC	N/A	A	A51	SJ 99458 24888	RAP 4
Midlands Meres and Mosses Phase 2 Ramsar Site	Cop Mere	Unclassified/Minor	Un-named Rd to East of Cop Mere	SJ 80303 29457	RAP 8
	Oakhanger Moss	Motorway	M6	SJ 77091 55066	RAP 25
Cannock Extension Canal SAC	N/A	A	A5 (Watling St)	SK 02021 06915	RAP 10
		B	B4154 (Lime Ln)	SK 02005 06290	RAP 11
Fens Pools SAC	N/A	A	A4101 (High Street)	SO 92068 89240	RAP 12
		A	A461 (Stourbridge Rd)	SO 92407 88622	RAP 13

Table 1.2.: Roads to be Assessed after Scoping

2. Screening Thresholds

2.1. Screening Against Modelled AADT Growth

2.1.1. A suitably experienced Traffic and Transport Consultancy (TTC) should be engaged and provided with appropriately attributed shape files of all the land use allocations of the partnership authorities where preferred options are known[13].

2.1.2. At all RAPs the TTC must model the likely traffic growth of all known site allocations over the total extent of the (combined) local plan periods. This information can be derived via Trip Rate Information Computer System datasets (TRICS[14])[15].

2.1.3. TRICS is a national system of trip generation analysis based on an extensive database formed from several thousand transport surveys. This allows TRICS datasets to determine inbound and outbound traffic generation and trip dispersal for a wide variety of development types across all geographic regions of the UK.

2.1.4. The vehicular and HGV trip generation rates for all the site allocations provided to the TCC (and the likely destinations of these new trips) can be combined to determine likely net-AADT growth at each assessment location.

2.1.5. Site allocation's that will result in the re-development of a previously developed site (especially those that result in a reallocation from employment to residential) frequently have the outcome of changing traffic types and traffic patterns. These types of site allocation often result in changes in the types and patterns of vehicle trip cause by the site and will reduce in AADT on some roads whilst increasing it on others.

2.1.6. As such, where a site allocation is for the re-development of a currently developed and still operational, only its net-increase in AADT at any RAP should be considered.

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[13] **Please note: It is understood that, at this time, many partnership authorities have not yet identified the preferred locations of future Local Plan allocations. This will not prevent the assessment being undertaken as the likely in-combination traffic growth / nitrogen deposition can be accounted for using national data sets to derive regional traffic growth factors which can then be used to reflect traffic growth from both 'unallocated partnership a thorites' and traffic growth originating from outside the combined partner authority's area (see Section 2.2). Subsequently, when a partnership authority (which currently lacks preferred allocation location data) wishes to assess the possible impacts of their own AADT growth, the traffic growth at all RAPs will need to be re-modelled (in accordance with the methodology detailed in Section 2.1), but only using the shape files of their allocations. Once AADT growth figures for that partnership authorities are determined (in isolation) they can then be compared against the previously modelled in-combination values at each RAP. Should their AADT growth be determined to be less than the previously modelled in-combination values then it can be assumed that their impacts have already been accounted for and their likely impacts fully assessed. Their AADT growth would then be deducted from the previously modelled in-combination values, reducing the 'pool' of in-combination AADT for future partnership authorities to test against. In this manner it is anticipated that the pool of in-combination AADT at each RAP will reduce over time as successive additional sets of Local Plan allocations are tested against it.**

[14] TRICS, 2022, Available at: https://www.trics.org/Default.aspx

[15] Based upon the TTC's advice, alternative traffic models to TRICS may be recommended to generate site specific trip data. These other models could be used if deemed more robust, but re-consultation with NE should occur prior to the adoption of an alternative model.

2.1.7. The net-AADT of site allocations on previously developed and still operational sites can be calculated by the TTC by:

- Determining the currently operational site's trip generation / AADT along the highway network, and
- Deducting the sites current trip generation / AADT figures from the modelled trip generation / AADT figures, attributed to its new allocation.

2.1.8. At any RAP where the likely **net-AADT of all known land usage allocations** is determined to be **0,** no further assessment is required at that location.

2.1.9. At any RAP where the likely **net-AADT of all known land usage allocations** is determined to be **between 1-999 domestic vehicles** or **1-199 HGV's,** an **in-combination assessment is required,** and the possible traffic growth caused by other plans and projects must be considered (see Section 1.6).

2.1.10. At any RAP where the likely **net-AADT of all known land usage allocations** is determined to be **1000 or greater domestic vehicles** or **200 or greater HGV's,** there is a **possible significant impact upon a European site in isolation.** In this instance then further screening against site specific critical load thresholds using nitrogen deposition modelling must occur (see Section 1.7).

2.2. Traffic Growth In-combination Assessment

2.2.1. The requirement for in-combination assessment is enshrined within the HRA process and must be undertaken on every potential impact which is shown to be insignificant in isolation.

2.2.2. By amalgamating the spatial data of all available preferred land usage allocations from multiple partnership authorities, their combined traffic growth at each RAP has already been calculated (via TRICS derived modelling) and considered against each other. However, this figure is unlikely to represent all the future traffic growth of these roads as:

- It is unable to account for traffic growth from those partnership authorities where the locations of preferred land usage allocation have yet to be determined; and
- It is unable to account for traffic growth originating from plans or projects that occur outside of the partner authority's area.

2.2.3. To account for both currently 'unallocated partnership authorities' and 'out of partnership area' growth it is considered that an appropriate value to represent likely in-combination growth could be determined by the TCC via usage of the Trip End Model Presentation Program (TEMPro[16]). TEMPro is used to view the National Trip End Model (NTEM[17])[18] which allows for the forecasting of regional traffic growth up to the end of the combined

[16] Trip End Model Presentation Program (TEMPro), available at: https://www.gov.uk/government/publications/tempro-downloads
[17] The Department for Transport (2022) National Trip End Model (NTEM), OGL, Available at: https://www.data.gov.uk/dataset/11bc7aaf-ddf6-4133-a91d-84e6f20a663e/national-trip-end-model-ntem
[18] Based upon the TTC's advice, alternative traffic models to NTEM may be recommended to generate in-combination AADT. These other models could be used if deemed more robust, but re-consultation with NE should occur prior to the adoption of an alternative model.

local plan periods. Once this growth factor is determined it can be applied to the existing base rate of AADT for the roads being assessed and the 'in-combination AADT' can be calculated.

- *For example: if the baseline AADT was 3000 and the growth factor was 2%, the likely 'in-combination AADT' would be 3060.*

2.2.4. On any road where the total value of the **known land usage allocations** generated **net-AADT** (calculated using TRICS dataset) and the forecast for the regional traffic growth (derived using TEMPro) is **less than 1000 AADT for domestic vehicles** or less than **200 AADT for HGV** then it has been clearly demonstrated that the **adoption of the known allocations, in combination with other plans, are highly unlikely to result in a significant impact** to that European site (due to increased traffic emissions).

2.2.5. On any road where the total value of **the known land usage allocations generated net-AADT** and the forecast for the regional traffic growth is **1000 AADT or greater for domestic vehicles**, or **200 AADT or greater for HGVs**, then there is a **possible significant impact upon a European site in combination with other plans.** In this instance, further screening against site specific critical load thresholds using nitrogen deposition modelling must occur (see Section 1.7).

2.2.6. It is noted that to allow for in-combination traffic growth to be calculated via TEMPro, the current baseline traffic rate for the roads at each RAP will need to be determined (where it has been concluded that net-AADT of all known allocations is less than 0). Whilst recent baseline traffic rate data may already be available for 'A' and 'B' roads, it is considered unlikely that this information will be available for the majority (or possibly all) of the unclassified / minor roads. As such, the existing traffic level at several RAPs may need to be determined via a new traffic counting survey.

2.2.7. The undertaking of traffic counting surveys is restricted to certain times of the year (i.e., periods deemed to represent 'usual traffic').

2.2.8. Where and when additional traffic counting surveys will need to be undertaken will need to be discussed with the TCC upon their appointment to ensure that robust and current traffic figures are available at all RAP locations where an in-combination assessment needs to be undertaken.

2.3. Screening Against Modelled Air Pollution, Nitrogen Deposition and Acidification.

2.3.1. A suitably experienced Air Quality Consultant (AQC) should be engaged and provided with the traffic growth data for all RAP locations where the net-AADT (alone or in-combination exceeds either of the traffic screening thresholds (see Section 1.1.5.).

2.3.2. The AQC will be instructed to model[19] the levels of gaseous ammonia (NH_3) and the oxides of Nitrogen (collectively NO_x) generated by the likely traffic growth along a 200m transect (running from the RAP location towards the nearest location in the Europeans site where the qualifying habitat is present (or habitats upon which the qualifying species relies).

2.3.3. The AQC will also determine the levels of deposition of nitrogen and acidification that could occur from the modelled levels of pollutants along the same 200m transect.

2.3.4. The AQC should take account or relevant meteorological data for each RAP where a transect is to be modelled.

2.3.5. **Critical Levels for NO_x and NH_3**

- In extreme cases NO_x can be directly toxic to vegetation and so impact directly on the qualifying habitats of European sites, but its main importance is as a source of nitrogen, which is then deposited. The 'critical level' is the atmospheric concentration at which NO_x could begin to directly impact upon vegetation. **For NO_x the critical level**, as detailed on the UK Air Pollution Information System (APIS)[20], **is 30 µg/m$^{3\text{-s}}$**. As such, **if the change in concentration is predicted to be greater than 0.3 µg/m$^{3\text{-s}}$, then 1% of the critical level has been exceeded**.

- NH_3 differs from NO_x in that it is both a source of nitrogen and is also directly toxic to vegetation in relatively low concentrations. **For NH_3 the critical level**, as detailed on the UK Air Pollution Information System (APIS)[21], **is either 1 µg/m$^{3\text{-s}}$ for lower plants or 3 µg/m$^{3\text{-s}}$ for higher plants**. To determine which critical level should be accessed against consideration must be given as to which order/s of plant constitute a key ecological component of the qualifying habitat, or habitat on which qualifying species rely. If lower plants (bryophytes, stoneworts, liverworts etc.) are considered to constitute a key ecological component then the lower value should be used. As such, **if the change in concentration is predicted to be greater than either 0.01 µg/m$^{3\text{-s}}$ or 0.03 µg/m$^{3\text{-s}}$ (whichever is determined to be most appropriate), then 1% of the critical level has been exceeded.**

- The change in pollutant concentrations due to the modelled traffic growth is known as the Process Contribution (PC).

[19] Via usage of ADMS-Roads, the Emission Factor Toolkit (EFT) or another recognised pollution model.
[20] UK Air Pollution Information System (APIS), 2020, Available at: https://www.apis.ac.uk/
[21] UK Air Pollution Information System (APIS), 2020, Available at: https://www.apis.ac.uk/

- To determine in-combination impacts and to see if the predicted traffic growth will result in a significant change in pollutant concentration, the PC is added to the background levels of each pollutant at, or near to each RAP. When the PC is added to the background level it is referred to as the predicted environmental concentration (PEC). The PEC should be determined across the total time period of the local plans.

- Two PEC scenarios should be modelled to estimate changes in pollution concentration: '**with adoption of preferred land usage allocations**' and '**without adoption of preferred land usage allocations**'. This allows for the impacts of the adopted plans to be compared against a 'do nothing scenario' (i.e., where local plans are not ever adopted). The change in pollution concentration between the 'do something scenario' (i.e., adopt local plans) to be directly assessed against the 'do nothing scenario' across each year of the local plan. The difference between the PEC of the two scenarios can then be determined and expressed as a percentage change of the critical level. If it is found that it is likely that 1% of the critical level will be exceeded (for one or more years across the span of the local plan) then Appropriate Assessment will need to be undertaken (see Chapter 3).

- For many of the RAP's, additional work has already occurred to better understand the background levels of pollutants via a network of diffusion tube monitoring stations installed by the Cannock Chase SAC Partnership. This diffusion tube monitoring provides data on the background concentrations of NO_x and NH_3 for six of the European sites being considered which can be used to complement modelled regional information provided by the APIS website[22]. The locations of these monitoring station are depicted on drawing C159172-01-02 (see Chapter 4).

- Where the Cannock Chase SAC Partnership has not established a monitoring station near to a RAP, the background pollution levels may be able to be derived from data from nearby monitoring stations established by highways or other local authority departments (Environmental Health). If no relevant monitoring station data is available, then modelled background pollution concentration across the whole of the UK (5km grid squares) is available from the APIS website[23].

- For each European site considered, the site-specific critical levels are displayed in Table 2.2. This information is provided by the UK Air Pollution Information System (APIS)[24].

2.3.6. Nitrogen Critical Load

- Nitrogen deposition is a form of eutrophication, derived from the combined nitrogen of NO_x and NH_3. Eutrophication negatively effects the biodiversity and ecological functions of habitats over time, altering soil chemistry and encouraging more competitive plant species. In aquatic habitats, nutrient enrichment frequently results in algal blooms, reducing water quality and resulting in anoxic conditions.

[22] UK Air Pollution Information System (APIS), 2020, Available at: https://www.apis.ac.uk/
[23] UK Air Pollution Information System (APIS), 2020, Available at: https://www.apis.ac.uk/
[24] UK Air Pollution Information System (APIS), 2020, Available at: https://www.apis.ac.uk/

On terrestrial habitats, new plant species can force out less competitive species assemblages, which often constitute the qualifying habitats of a European site, or provide the specific conditions needed to maintain healthy populations of the qualifying species. The nitrogen deposition rate below which these harmful ecological effects would not occur is referred to as the 'critical load'; these are different for each habitat.

- For each European site considered, the site-specific critical loads are displayed in Table 2.2. This information is provided by the UK Air Pollution Information System (APIS)[25].

- The critical loads for nitrogen deposition are described in the units of Kg/N/ha^{1}/year^{1}.

- Deposition rates for nitrogen are calculated by multiplying the ground level concentration of the appropriate pollutant by the appropriate deposition velocity, followed by multiplication with a conversion factor[26]. Deposition velocities and conversion factors for nitrogen deposition NO_x and NH_3 are provided in Table 2.1.

Pollutant	Vegetation type	Deposition velocity	Conversion factor for nitrogen deposition (from µg/m$^{3\text{-}s}$ to kg/N/ha^{1}/year^{1})
NO_x	Grassland (sites with short vegetation)	0.0015	96
	Woodland (sites with tall vegetation)	0.003	
NH_3	Grassland (sites with short vegetation)	0.02	260
	Woodland (sites with tall vegetation)	0.03	

Table 2.1: Pollutant Deposition Velocities and Conversion Factors

2.3.7. If the calculations determine the modelled nitrogen deposition will meet or exceed 1% of the lowest range of the site-specific critical load (see Table 2.2), then Appropriate Assessment will need to be undertaken to determine if their levels, location and temporal span of the nitrogen deposition could impact upon the integrity of the European site (see Chapter 3).

2.3.8. **Acid Deposition Critical Load**

[25] UK Air Pollution Information System (APIS), 2020, Available at: https://www.apis.ac.uk/
[26] Deposition velocities and conversion factors provided via Institute of Air Quality Management, (2020), A guide to the assessment of air quality impacts on designated nature conservation sites, V1.1, Available at: https://iaqm.co.uk/text/guidance/air-quality-impacts-on-nature-sites-2020.pdf

- A range of air pollutants can cause the acidification of soil and freshwater. The key pollutants are sulphur, in the form of sulphate ions (SO_4^{2-}), and nitrogen, as nitrate (NO_3^-), nitric acid (HNO_3) and ammonium ($NH4^+$) which arises from ammonia.

- Acid deposition predominantly impacts vegetation indirectly through changes to soil properties, with increasing the soil acidity, tending to increase the mobility of toxic metals (i.e., aluminium and manganese). Acid deposition is also known to result in root damage and nutrient deficiencies within the soils, both of which can stunt plant growth.

- How great a habitat is at risk from acid deposition is mainly dependant on the soil type, bedrock geology, weathering rate and its buffering capacity. In general, habitats dependent on slightly acidic substrate (i.e., heathland or acid grassland) and bog habitats are at greater risk of being adversely affected by increased rates of acid deposition compared with those associated with calcareous soils.

- Traffic emissions generate a negligible amount of additional sulphur, and so increased acid deposition is mostly a result of additional levels of nitrate and ammonium. These deposition rates must be modelled by the AQC, combined and then assessed against the site specific Minimum Critical Load for each European site provided by APIS. The relevant Minimum Critical Loads are provided in Table 2.2.

- It should be noted that, assuming Natural England agrees with the rationale for screening out several European sites from the need for assessment (see Sections 1.3 - 1.10, the determination of Acid Deposition against Minimum Critical Load levels is only possible / applicable for Cannock Chase SAC.

European Site of land parcel	Relevant RAP/s	Q.habitat/s or habitats which Q.species rely	Critical Level (µg/m^{3-s})	Critical Load range (kg/N/ha^{1}/year^{1})	Critical Load N Acid Dep (keq/ha/yr MinCLMaxN)	Pollutants	Recommended Vegetation type when Determining Deposition Velocity	Recommended Deposition Velocity NO_x / NH_3
Cannock Chase SAC	1,2,3	European dry heaths	1	10-20	1.285	NO_x / NH_3	Grassland – for RAP 1&3 Woodland – for RAP 2[27]	0.0015 / 0.003 0.02 / 0.03
		Northern Atlantic wet heaths with *Erica tetralix*	1					
Pasturefields Salt Marsh SAC	4	Inland salt meadows	3	20-30[28]	N/A[29]	NO_x / NH_3	Grassland	0.0015 / 0.003
Chartley Moss	5	Natural dystrophic lakes and ponds[30]	1	3-10	0.621	NO_x / NH_3	Grassland	0.0015 / 0.003
		Transition mires and quaking bogs[31]	1	10-15	0.621			
Aqualate Mere	6, 7	Fen, marsh and swamp (*Juncus effusus / acutiflorus - Galium palustre* rush pasture)	1	15-25	4.506	NO_x / NH_3	Grassland	0.0015 / 0.003
		Fen, marsh and swamp (*Filipendula ulmaria - Angelica sylvestris* mire)	1	15-30	4.506[32]			
		Fen, marsh and swamp (*Phragmites australis* swamp and reed-beds)	1	15-30	N/A[33]			

Table 2.2: Site Specific Critical Levels, Loads and Deposition Velocities (Continues)

[27] Representative of substantial area of mature woodland between road and qualifying habitat
[28] No critical load range is available for inland salt meadows, as such the values for coastal saltmarsh are recommended to be used instead.
[29] Habitat not sensitive to acidification.
[30] Not within 200m of key road
[31] Not within 200m of key road
[32] Habitat not sensitive to acidification.
[33] Habitat not sensitive to acidification.

European Site of land parcel	Relevant RAP/s	Q.habitat/s or habitats which Q.species rely	Critical Level (µg/m^{3-s})	Critical Load range (kg/N/ha^{1}/year^{1})	Critical Load N Acid Dep (keq/ha/yr MinCLMaxN)	Pollutants	Recommended Vegetation type when Determining Deposition Velocity	Recommended Deposition velocity NO_x / NH_3
Cop Mere	8	Permanent dystrophic lakes, ponds and pools	1	10[34]	N/A[35]	NO_x / NH_3	Grassland	0.0015 / 0.003
Cannock Extension Canal SAC	10, 11	Permanent oligotrophic waters: Softwater lakes	3	10[36]	No critical loads available	NO_x / NH_3	Grassland	0.0015 / 0.003
Fens Pools SAC	12, 13	Permanent oligotrophic waters: Softwater lakes[37]	3	10[38]	No critical loads available	NO_x / NH_3	Woodland[39]	0.02 / 0.03
Betley Mere	14	Fen, marsh and swamp (*Juncus effusus / acutiflorus - Galium palustre* rush pasture)	1	15-25	1.133	NO_x / NH_3	Grassland	0.0015 / 0.003
		Fen, marsh and swamp (*Juncus subnodulosus - Cirsium palustre* fen meadow)	1	15-30	1.133			
		Fen, marsh and swamp (*Phragmites australis* swamp and reed-beds)	1	15-30	N/A[40]			

Table 2.2: (Continued) Site Specific Critical Levels, Loads and Deposition Velocities (Continues)

[34] Range is between 3-10 kg/N/ha^{1}/year^{1}. The lower end of the range is intended for boreal and alpine lakes, and the higher end of the range for Atlantic softwaters. Site conditions considered to more closely relate to Atlantic softwaters so a critical load of 10 kg/N/ha^{1}/year^{1} is recommended.
[35] Habitat not sensitive to acidification.
[36] Range is between 3-10 kg/N/ha^{1}/year^{1}. The lower end of the range is intended for boreal and alpine lakes, and the higher end of the range for Atlantic softwaters Site conditions considered to more closely relate to Atlantic softwaters so a critical load of 10 kg/N/ha^{1}/year^{1} is recommended.
[37] No critical load data in available for the breeding pool utilised by the sites qualifying species (great crested newts). As such the values for softwater lakes are recommended to be used instead
[38] Range is between 3-10 kg/N/ha1/year1. The lower end of the range is intended for boreal and alpine lakes, and the higher end of the range for Atlantic softwaters.. Site conditions considered to more closely relate to Atlantic softwaters so a critical load of 10 kg/N/ha^{1}/year^{1} is recommended.
[39] Representative of substantial areas of mature woodland between both key roads and qualifying habitat.
[40] Habitat not sensitive to acidification.

European Site of land parcel	Relevant RAP/s	Q.habitat/s or habitats which Q.species rely	Critical Level ($\mu g/m^{3-s}$)	Critical Load range ($kg/N/ha^{1}/year^{1}$)	Critical Load N Acid Dep (keq/ha/yr MinCLMaxN)	Pollutants	Recommended Vegetation type when Determining Deposition Velocity	Recommended Deposition velocity NO_x / NH_3
Peak District Dales SAC	15 - 21	Various	1	Consult Natural England[41]	Various[42]	NO_x / NH_3	Grassland Woodland	0.0015 / 0.003 0.02 / 0.03
Wybunbury Moss	22	Raised and blanket bogs	1	5-10	0.562	NO_x / NH_3	Grassland	0.0015 / 0.003
Black Firs & Cranberry Bog	23, 24	Broadleaved deciduous woodland	1	10-20	1.855	NO_x / NH_3	Woodland (RAP 23)	0.02 / 0.03
		Raised and blanket bogs	1	5-10	0.574	NO_x / NH_3	Grassland (RAP 24)	0.0015 / 0.003
Oakhanger Moss	25	Broadleaved deciduous woodland	1	10-20	1.946	NO_x / NH_3	Woodland	0.02 / 0.03
		Carex Acutiformis Swamp	3	N/A[43]	N/A[44]	N/A	N/A	N/A
		Rich fens	3	15-30	N/A[45]	NO_x / NH_3	Grassland	0.0015 / 0.003
		Valley mires, poor fens and transition mires	1	10-15	0.9			
		Raised and blanket bogs	1	5-10	0.573			
		Moist and wet oligotrophic grasslands: Molinia caerulea meadows	1	15-25	1.338			

Table 2.2: (Continued) Site Specific Critical Levels, Loads and Deposition Velocities (Continues)

[41] Due the site containing seven different qualifying habitats and uncertainty over their geographic distribution within the considered land parcels of the SAC it is unclear which critical load level/s to use. If it is determined that any parcels of the Peak District Dales SAC do require assessment (see Section 1.7) Natural England should be consulted as to the appropriate critical load/s to test against.
[42] Due the site containing seven different qualifying habitats and uncertainty over their geographic distribution within the considered land parcels of the SAC it is unclear which critical load level/s to use. If it is determined that any parcels of the Peak District Dales SAC do require assessment (see Section 1.7) Natural England should be consulted as to the appropriate critical load/s to test against.
[43] Habitat not sensitive to eutrophication.
[44] Habitat not sensitive to acidification.
[45] Habitat not sensitive to acidification.

European Site of land parcel	Relevant RAP/s	Q.habitat/s or habitats which Q.species rely	Critical Level ($\mu g/m^{3-s}$)	Critical Load range ($kg/N/ha^{1}/year^{1}$)	Critical Load N Acid Dep (keq/ha/yr MinCLMaxN)	Pollutants	Recommended Vegetation type when Determining Deposition Velocity	Recommended Deposition velocity NO_x / NH_3
Bees Nest & Green Clay Pits SAC	26	Sub-atlantic semi-dry calcareous grassland	1	15-25	4.954	NO_x / NH_3	Grassland	0.0015 / 0.003

Table 2.2: (Continued) Site Specific Critical Levels, Loads and Deposition Velocities

3. Appropriate Assessment

3.1. Determining Likely Impacts of Nitrogen Deposition on the Integrity of a European site

3.1.1. A suitably experienced Ecological Consultant (EC) should be engaged and provided with all reports and modelled data completed by the TTC and AQC.

3.1.2. An Appropriate Assessment (AA) must be undertaken of all European sites where all the below criteria have been met:

- The sites qualifying habitats (or habitat on which the qualifying species rely) which are sensitive to air quality impacts;
- The sites qualifying habitats are within 200m of a road/s;
- Quantifiable traffic growth on the identified road/s is a reasonable possibility;
- The traffic growth at one or more RAP meets or exceeds a net-growth of 1000 AADT for vehicles or 200 AADT for HGVs; either alone (derived through use of TRICS) or in-combination with other plans or projects (derived through use of TEMPro); and
- The modelled air pollution concentration meets or exceeds 1% of critical level for NO_x, NH_3 and/or 1% of the site-specific critical load for nitrogen deposition and/or the site specific acid deposition minimum critical load (where applicable) is met or exceeded; either alone or in combination.

3.1.3. The purpose of AA should first be to determine the scope and scale of the possible impacts and to ascertain if they are sufficient to affect the integrity of the European site. The integrity of the European site is unlikely to be affected if it can be demonstrated that "**it is highly unlikely that traffic growth will result in a significant impact upon the qualifying features of the sites, will prevent the attainment of the site's conservation objectives or otherwise impede their delivery**".

3.1.4. At this nascent stage of the establishment of the evidence bases, it is not possible or appropriate to anticipate which of the European sites considered (if any) will need to progress to AA, or the outcome of those assessments.

3.1.5. However, the following are considered material questions that should be answered by the EC at AA to allow the impact of traffic growth on a sites integrity to be robustly understood:

- Does the qualifying habitat occur in any area where the modelled air pollution, nitrogen deposition and acidification concentrations meet or in exceed 1% of the critical level / load.
- What is the total measured area of the qualifying habitat where critical levels/critical loads are likely to be in exceedance?
- Does the total measured area of any qualifying habitat where critical levels/critical loads are likely to be in exceedance represent a notable percentage of its total area within the European site?

- If the habitat is not the qualifying feature, but instead supports a qualifying species, is it likely that the additional levels of air pollution / nitrogen deposition will result in habitat quality degradation sufficient to impact upon the population or distribution of the qualifying species?
- Is there any habitat, ecological or geological features (either within the site, functionally connected to, or between the road and modelled deposition areas) which may buffer, mitigate or exacerbate the likely impacts of air pollution or nitrogen deposition?
- What is the temporal span of the air pollution, nitrogen deposition or acidification concentration (at or in exceedance of critical levels) across the modelled local plan period?

3.1.6. For any European site where the EC determines that the best scientific evidence available does not suggest that 'it is highly unlikely that traffic growth will prevent the attainment of the site's conservation objectives or otherwise impede their delivery', then it should be deemed that a significant impact upon the site is likely, and mitigation against the likely scale or harm must be determined.

3.2. Determining Proportional Mitigation

3.2.1. As with AA, it is not possible or appropriate to anticipate which of the European sites may require mitigation against the impacts of air pollution or nitrogen deposition. However, it is a requirement of HRA that all mitigation is both proportional to the scale of determined impact and securable.

3.2.2. Any proposed mitigation must be discussed and developed in concert with the considerations of Natural England.

3.2.3. It is considered that there are four main mitigation pathways available to the partnership authorities:

- **Policy;**
- **Habitat management;**
- **Redirection of traffic; or**
- **Increased interception or abstraction of air pollution.**

3.2.4. In the future **Policies** which promote or require the following are likely to reduce the level of traffic growth and / air pollution that is discharged for vehicles have the potential to be considered as mitigatory. However, advice provided by Natural England[46] suggest that insufficient evidence is currently available to robustly determine the likely extent by with policies alone are able to reduce air pollution impacts to European sites. As such, if used, any mitigation of impacts via new policy adoption must form part of an extensive suit of other mitigatory measures. Their inclusion should be viewed more as bringing

[46] Communications from Natural England, 8/02/2023

'added benefit' rather than being a 'mitigatory solution' in and of themselves. That notwithstanding, policies which promote the following should be considered:

- Reduction of reliance on private cars via promotion of sustainable transport (train, bus, cycles, walking networks etc.);
- Increased provision for electric cars (including setting expected percentages for charging and incorporation within new residential, employment and provisioning/servicing developments), and
- Improved communication infrastructure (ensuring that developments make provision for high-speed internet and telecommunications potentially reduces the need to travel, particularly during the morning and evening peak hours).

3.2.5. On some European sites it may be possible that additional **habitat management** could be enacted upon the areas where nitrogen deposition is in exceedance of critical load so as to increase the speed of the nitrogen cycle; removing available 'nutrient nitrogen' from the soil at an accelerated rate. However, it must be noted that forms of habitat management that improve the condition of European sites more generally will be considered as a compensatory measure by Natural England and so should be avoided. This mitigation could take the form of:

- Cutting and collecting vegetation to reduce nutrient levels in soil,
- Spot treatment of areas of undesirable 'high nutrient' plant species,
- Encouraging conditions for de-nitrifying plants or bacterial species to become abundant, or
- The introduction of conservation grazing regimes to reduce nutrient levels in soil.

3.2.6. These additional habitat management prescriptions could be funded via proportional developer contributions from new residential and employment developments across the partnership authorities.

3.2.7. However, any new mitigatory habitat management suggested will need to ensure that:

- It is additional to current management being enacted (i.e., through an existing agreed Agri-environment scheme etc.);
- It is possible (physically and legally);
- It has been agreed with the landowner;
- The delivering party has been identified (if other than the landowner);
- That management will occur across a temporal span which equals (and preferably exceeds) the time where deposition will meet or exceed 1% of the critical load;
- That its enactment will not result in additional ecological harm, or-else this harm can also be mitigated against (i.e., disturbance or nesting / overwintering birds, injury to protected species, overgrazing, etc.); and
- That Natural England agree that this management represents mitigation and not compensation.

3.2.8. **Redirection of traffic** could be achieved via the creation of one or more Clean Air Zones (CAZ), which would charge a toll to use certain roads with certain vehicle types. This approach has recently been taken to resolve air pollution and nitrogen deposition issues

impacting upon the Epping Forest SAC[47]. However, it is unclear if such an approach is practical within the partnership authorities' areas, how such a scheme would be developed and how long it would take to enact.

3.2.9. **Increased interception or abstraction of air pollution** may be possible via the creation of addition man-made air pollution control barriers, the planting and management of additional roadside trees or creation of new intervening woodland blocks.

3.2.10. Man-made air pollution control barriers have the benefit of being immediately affective once installed but thy are often considered to be 'unsightly'. For roadside trees and woodland trees will need to be semi-mature before they begin to meaningfully reduce the level of air pollution reaching the qualifying habitats via both mechanical (i.e., acting as a physical barrier increasing deposition rates) and biological means (i.e., nutrient uptake).

3.2.11. The creation of man-made air pollution control barriers or additional tree / woodland planting and management could be funded via proportional developer contributions from new residential and employment developments across the partnership authorities.

3.2.12. However, the practicality of mitigation by this means and the likely levels of air pollution reduction that it could reliably account for, will need to be carefully considered.

3.2.13. For example, tree planting close to highways may not be practical due to lack of available land, health and safety concerns (because of future overhanging trees) or the potential to impact upon pre-existing underground services.

3.2.14. Also (as with habitat management) any suggested mitigation via new tree planting will need to ensure:

- It is possible (physically and legally);
- It has been agreed with the landowner;
- The delivering party has been identified (if other than the landowner); and
- That mitigation will be affective (i.e., the tree will reach a required minimum height/size) by the start of the temporal span which equals (and preferably exceeds) the time where deposition will meet or exceed 1% of critical load.

3.2.15. The species composition and starting age/size of any trees planted will have a material effect on the likely success of the mitigation. For example, the planting of semi-mature fast growing conifer species could quickly establish a new vegetative barrier and maintain it through all seasons.

[47] Epping Forest District Council, (2020), Epping Forest Interim Air Pollution Mitigation Strategy: Managing the Effects of Air Pollution on the Epping Forest Special Area of Conservation, Available at: https://www.eppingforestdc.gov.uk/wp-content/uploads/2021/02/Interim-Epping-Forest-Air-Pollution-Mitigation-Strategy.pdf

3.2.16. However, the planting of new areas of woodlands and roadside trees (especially conifers) could cause several concerns that would need to be considered and addressed prior to the adoption of mitigation by this method, including:

- Impacts upon biodiversity and ecological connectivity;
- Visual impact; and
- Impacts upon landscape character.

Appendix E Natural England Letter (April 2023)

Date: 14 April 2023
Our ref: 427535
Your ref: Air Pollution Evidence Base, Rev B

Customer Services
Hornbeam House
Crewe Business Park
Electra Way
Crewe
Cheshire
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Combined Partnership Authorities

BY EMAIL ONLY

Dear Sirs

Planning consultation: Creation of an Air Pollution Evidence Base Brief to Support Local Plan HRA
Location: Staffordshire, Wolverhampton, Walsall, Sandwell and Dudley

Thank you for your consultation on the above report.

Natural England is a non-departmental public body. Our statutory purpose is to ensure that the natural environment is conserved, enhanced, and managed for the benefit of present and future generations, thereby contributing to sustainable development.

The aim of this report is to present a detailed step by step methodology of how the Local Planning Authorities in the above locations will determine the likely air pollution impacts (via increased traffic generation) on several European sites should emerging local plans be adopted.

The report presents a rationale for why certain European sites can be "screened out" from requiring detailed assessment of air quality impacts. For certain European sites that cannot be screened out it presents a methodology for how air quality impacts from emerging local plans will be assessed.

We have reviewed the report and can confirm that it has been prepared in full accordance with Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations. We are therefore able to support the report's methodology and its conclusions.

Should relevant legislation or guidance change the report will need to be reviewed. Should the report itself change please consult us again.

Yours sincerely

Paul Horswill

Dr Paul Horswill
Senior Adviser, West Midlands Team

AQ Steering Group Meeting Notes – 11th September 2024 – MS Teams

Attendees:

Kelly Harris (KH) – Lead Planning Manager – *South Staffordshire District Council (Chair)*

Matthew Wall (MW) – Senior Planning Ecologist – *South Staffordshire District Council*

Jemma March (JM) – Interim Planning Policy Manager – *Cannock Chase Council*

Matthew Hardy (MH) - Senior Planner – *Cannock Chase Council*

Michele Ross (MR) – Lead Planning Manager – *City of Wolverhampton Council*

Kaliegh Lowe (KL) – Principal Planning Officer – *Dudley Council*

Patricia McCullagh (PM) - Planning Policy Team Leader – *Sandwell Metropolitan Borough Council*

Alex Yendole (AY) – Strategic Planning & Placemaking Manager – *Stafford Borough Council*

Paul Horswill (PH) – Senior Officer– *Natural England (NE)*

Gillian Driver (GD) – Senior Officer – *Natural England*

Marian Ashdown (MA) –Principal Officer– *Natural England*

Damian Pawson (DP) – Technical Director Air Quality - *Sweco*

Lee Shelton (LS) – Principal Air Quality Consultant – *Sweco*

Agenda:

1. Apologies and Introductions - KH
2. Brief presentation of air quality findings – Sweco
3. Agree sites with adverse effects to site integrity – NE/All
4. Next steps – KH/NE

Summary of Actions Arising from Meeting:

- Sweco Presentation to be circulated to Partnership Authorities.
- Sweco to provide results for all sites showing 'Future Year Do Something' against Future Year 'Do Nothing'.
- Cannock: Partner Authorities to review the conservation objectives, site improvement plan and other relevant information on designated sites view for the affected units to confirm the current interest feature and whether there is an objective to restore it to heathland.
- Fens Pools: Dudley to check location of GCN breeding pools on Fens Pools SAC to determine if they fall inside the zones of exceedance.
- Oakhanger Moss: Sweco to check modelling/remodel air pollution
- Cannock Extension Canal: NE to reconsult with our air quality specialist in light of a recent evidence review of air-quality impacts and aquatic habitats

Key Agreed Outcome:

Draft air quality report agreed to be used as baseline by all attendees.

1. Introduction

- All Local Authorities are facing potential air quality objections from Natural England (NE), which could delay or prevent the submission of the local plans; South Staffordshire District Council and Cannock Chase Council are likely to be the first to submit.
- The government's emphasis on addressing issues in local plans necessitates a collaborative approach and timely solutions; specifically referring to the exchange of letters between Matthew Pennycook MP and the Planning Inspectorate. This indicated local plan examinations would not be used to resolve outstanding local plan issues.
- Solihull's recent withdrawal of their local plan highlights the urgency of the matter.

2. Brief Presentation from Sweco on Air Quality Results

- Sweco presented the findings of their air quality study, focusing on in-combination assessments.
- NE Praised the report, "it's a very good report" and well explained. Queried whether Future Year 'Do Something' was modelled against the Future Year 'Do nothing' without using the alternative baseline or whether just modelled the Future Year 'Do Something' against the alternative baseline? Could be useful for Oakhanger Moss (near M6) and possible A5.
- Sweco confirmed they had these results and would review them.

Outcome: Baseline report agreed unanimously by Partner Authorities.

3. Site Specific Discussions

Cannock Chase SAC

- The HRA consultants initially considered scoping out this site due to it being woodland (which is an SSSI feature) as opposed to heathland (which is a SAC feature).
- However, a more detailed analysis is required to assess whether there is an objective to restore any of the affected areas to heathland.
- SStaffs will review the conservation objectives, site improvement plan and other relevant information on designated sites view for the affected units to confirm the current interest feature and whether there is an objective to restore it to heathland.

Fens Pools SAC

- This site is designated for GCN, and the supplementary advice mentions supporting processes and air quality.
- An assessment will be conducted to determine if GCN ponds are present in the exceedance area and if they could be affected by nitrogen deposition.
- The Countryside services team at Dudley will be consulted for information on pond locations.
- NE to re-consult with our air quality and amphibian specialists to discuss the sensitivity of this feature to air quality

Oakhanger Moss SSSI

- This site is considered sensitive to air quality, and mitigation measures may be required.
- The modelling will be double-checked to confirm the extent of the impact area as it appeared to spread a significant distance from the road.

Cannock Extension Canal

- This site has been a subject of ongoing discussions.
- Water quality monitoring data and information from Canal and River Trust can be reviewed.
- Determining whether the site is nitrogen or phosphorus limited is crucial for assessing potential impacts and whether adverse effects on site integrity are likely.
- Any mitigation must be Habitat Regulations compliant; policies for electric chargers and modal shift of traffic will not suffice.
- The Centre for Ecology and Hydrology are continuing to explore the impact of air quality and aquatic habitats. A draft of their report was recently shared with stakeholders. NE will consult with air quality specialist to get the latest advice on this site in light of this report.

4. Next Steps

- A follow-up meeting will be held within the next week to ten days.
- A technical steering group with ecologists and HRA consultants will be established.
- Minutes will be circulated for inclusion in Duty to Cooperate reports.
- All parties will collaborate to address NE's concerns and establish a mitigation plan, potentially through a Statement of Common Ground (SoCG).
- The air quality study will be a living document and updated as plans evolve.

Additional Notes

- Walsall and other local authorities local plans are not yet as progressed as others, and the air quality study will need to be reviewed as new site allocations and local plans come forward. It is an iterative document.
- Inter-authority collaboration is crucial for addressing these regional air quality concerns and all agreed to continue dialogue.
- Sweco draft air quality report to remain draft and confidential until the SAC assessments are finalised and agreed.

AQ Steering Group Meeting Notes – 25th September 2024 – MS Teams

Attendees:

Kelly Harris (KH) – Lead Planning Manager – *South Staffordshire District Council (Chair)*

Matthew Wall (MW) – Senior Planning Ecologist – *South Staffordshire District Council*

Jemma March (JM) – Interim Planning Policy Manager – *Cannock Chase Council*

Matthew Hardy (MH) - Senior Planner – *Cannock Chase Council*

Michele Ross (MR) – Lead Planning Manager – *City of Wolverhampton Council*

Kaliegh Lowe (KL) – Principal Planning Officer -Dudley *Council*

Patricia McCullagh (PM) - Planning Policy Team Leader – *Sandwell Metropolitan Borough Council*

Gillian Driver (GD) – Senior Officer – *Natural England*

Marian Ashdown (MA) – Principal Officer, Flexible Casework Team – *Natural England*

Damian Pawson (DP) – Technical Director Air Quality - *Sweco*

Lee Shelton (LS) – Principal Air Quality Consultant – *Sweco*

Apologies:

Alex Yendole (AY) – Strategic Planning & Placemaking Manager – *Stafford Borough Council*

Paul Horswill (PH) – Senior Advisor – *Natural England (NE)*

Agenda:

1. Apologies
2. Agree minutes of previous meeting
3. Actions from previous meeting & discussion on screening/'adverse effects on site integrity'
    1. Cannock Chase SAC
    2. Cannock Extension Canal SAC
    3. Fens Pools SAC
    4. Oakhanger Moss – Midlands Meres & Mosses Phase II
4. Actions for next meeting
5. Agree date of next meeting

Summary of Actions Arising from Meeting:

- Natural England to confirm agreement with previous minutes – **to be completed by 4th October 2024 at the latest**.
- MW to check designated sites viewer to clarify whether lichens/bryophytes are associated with the units of Cannock Chase SAC where exceedances are indicated – **TBC by Wednesday 4th October**
- NE to talk to the other people in the team to check on management plan status; specifically for the areas impacted by exceedances and to look into condition assessment progressed earlier this year – **TBC by Wednesday 16th October**
- Dudley Council to follow up on information relating to Fens Pools SAC and GCN pond locations for HRA reporting – **TBC by Friday 18th October**
- NE & MW to continue internal discussions to assist determination of whether Cannock Extension Canal is oligo/mesotrophic and N or P limited – **continual objective to be resolved as soon as possible.**
- MW and NE to continue to investigate whether floating water plantain at Cannock Extension Canal is solely the submerged phenotypic variant to assist with Appropriate Assessment if necessary- **continual objective to be resolved as soon as possible.**
- NE to consult with air quality specialists in relation to the Centre of Ecology and Hydrology's report on the impact of air quality and ~~aquatic habitats~~ - **TBC Friday 4th October**
- NE to continue to investigate other project that had AQ impacts on a similar site to Cannock Extension Canal and what mitigation if any was proposed and provide any useful information to the Steering Group **TBC Friday 4th October**
- MW to check for distribution map of floating water planting with CRT – **TBC Friday 4th October**
- Cannock Chase Council to circulate draft Statement of Common Ground and to work with SStaffs to draft an updated SoCG - **TBC Friday 4th October**

Key Agreed Outcome:

- Fens Pools SAC and Oakhanger Moss SSSI (Midlands Meres & Mosses Phase II Ramsar) screened out of further assessment.

2. Agree Minutes from Previous Meeting

Minor amendments to previous minutes re. road names and titles clarified and accepted.

NE have made some notes on the previous minutes and need to confirm with Dr Paul Horswill. Will confirm and agree minutes as soon as possible.

3. Discussion on Sites and Adverse Effects on Site Integrity

Cannock Chase SAC:

An order has been placed by Wolverhampton with Staffordshire Ecological Record (SER) for lichen and bryophyte records on Cannock Chase SAC; currently waiting on SER data.

NE confirmed that there are some management plans for Cannock Chase but not for the whole site. NE to talk to the other people in the team to check on management plan status; specifically for the areas impacted by exceedances.

SStaffs raised that a condition assessment visit was undertaken by NE staff earlier this year, might be helpful/useful to look into. NE to investigate condition assessment details.

SStaffs wanted to clarify point regarding lichens and bryophytes with NE. NE need to see if lichens are associated with the units closest to the road. Should be able to find on designated sites viewer and units viewer.

Fens Pools SAC:

Dudley Council provided a map with great crested newt (GCN) pond locations. There are some newer ponds to be included on the plan, Dudley Council trying to establish via Countryside Services Team where they are. The GCN ponds are understood to be outside of the areas of exceedance. Dudley Council will follow this up with their Countryside Services team.

NE happy to screen Fens Pools out and consider this a proportionate response to the impacts as foraging habitats for GCN are not hugely sensitive to impacts, and air quality impacts are unlikely to affect the pools themselves to the extent that they would affect the population of GCN.

Dudley Council confirmed that the Countryside Services Team said that the population of GCN is still healthy and Dudley Council will continue to send across the relevant data nonetheless to inform the subsequent HRA reporting.

Oakhanger Moss Ramsar:

Sweco presented detail on significant exceedances at previous meeting. Sweco have since remodelled the data and the modelling was sound.

Sweco noted that the majority of the impact was a result of background growth nationally rather than due to traffic growth from the local plans. Local plan in-combination growth was noted to be below c.100 AADT.

Sweco clarified to NE that the traffic growth causing most of the impact was from traffic outside of the study area. NE agreed that Oakhanger Moss could be screened out on that basis.

Cannock Extension Canal:

Canal and River Trust (CRT) have been contacted to confirm whether the canal was nitrogen or phosphorus limited. Water quality data has been provided but it is unclear whether the canal is mesotrophic or oligotrophic, or whether it is N or P limited based on the data. Sstaffs will continue to liaise with CRT for information.

NE have asked internally whether Cannock Extension Canal is likely to be N or P limited and are still looking into it.

SStaffs queried whether traffic on the A5 and background growth needs to be considered in the same way that has been progressed for Oakhanger Moss. NE confirmed that this is unlikely to be useful.

NE reiterated that it had been previously mentioned that the floating water plantain is submerged at the site, rather than floating. Is there anything floating that could pick up airborne concentrations?

NE mentioned that the CEH exploring impact of air quality on water. NE will consult with AQ specialists to get advice on this site in light of this report.

SStaffs mentioned that NE is aware of a project that could have air quality impacts on a protected canal site that is notified for floating water plantain. NE confirmed a specialist had been contacted to find out what if any mitigation measures where applied at this site. No response received so far.

SStaffs noted CRT may have a distribution map for floating water plantain at the site.

4. Actions for Next Meeting

Verbally confirmed and summarised above.

5. Date of Next Meeting

No date confirmed but likely to be within the next two weeks. Urged everybody to continue to liaise via email to resolve items prior to the next meeting.

6. AOB

Cannock Chase Council started a Statement of Common Ground (SoCG) with NE in the summer and will circulate to SStaffs with a view to progressing a draft SoCG for Partner Authorities in relation to this air quality study.

Sweco draft air quality report to remain draft and confidential until the SAC assessments are finalised and agreed.

Meeting Closed.

AQ Steering Group Meeting Notes – 14th October 2024 – MS Teams

Attendees:

Kelly Harris (KH) – Lead Planning Manager – *South Staffordshire District Council (Chair)*

Matthew Wall (MW) – Senior Planning Ecologist – *South Staffordshire District Council*

Jemma March (JM) – Interim Planning Policy Manager – *Cannock Chase Council*

Matthew Hardy (MH) - Senior Planner – *Cannock Chase Council*

Kaleigh Lowe (KL) – Principal Planning Officer -Dudley *Council*

Patricia McCullagh (PM) - Planning Policy Team Leader – *Sandwell Metropolitan Borough Council*

Gillian Driver (GD) – Senior Officer – *Natural England*

Marian Ashdown (MA) – Principal Officer, Flexible Casework Team – *Natural England*

Damian Pawson (DP) – Technical Director Air Quality - *Sweco*

Lee Shelton (LS) – Principal Air Quality Consultant – *Sweco*

Apologies:

Paul Horswill (PH) – Senior Advisor – *Natural England (NE)*

Michele Ross (MR) – Lead Planning Manager – *City of Wolverhampton Council* (Annual Leave)

Agenda:

1. Apologies
2. Agree minutes of previous meeting
3. Actions from previous meeting & discussion on screening/'adverse effects on site integrity'
    1. Cannock Chase SAC
    2. Cannock Extension Canal SAC
4. Statement of Common Ground
5. Actions for next meeting
6. Agree date of next meeting

Summary of Actions Arising from Meeting:

All to continue to investigate necessary details to understand adverse effects on site integrity.

GD/NE to review internal only reports and feedback/advise as necessary.

NE to send back comments on SoCG.

Sweco to finalise air quality report and issue.

2. Agree Minutes from Previous Meeting

Agreed two sets of previous minutes.

3. Discussion on Sites and Adverse Effects on Site Integrity

Cannock Chase SAC:

MW talked through notes circulated regarding Cannock Chase. Checked whether lichens & bryophytes (L&B) are associated with qualifying features and whether there is any ambition to restore areas of exceedance that are currently woodland to heathland.

Units associated with the Chase on SSSI units (via designated sites viewer) within exceedance areas are all lowland dry heath; not North Atlantic Wet Heath. Two types of dry heath on Cannock Chase, H8 and H9. Interpretation Manual of European Habitats document suggests L&B aren't associated with H8 or H9, NVC however states that L&B are characteristic of H9.

MW said on management, the National Trust (NT) and Staffordshire County Council are landowners. MW has contacted project managers for wood pasture project at RAP01. Some intention to regenerate heath north of the A415 but not clear yet whether that includes areas of exceedance.

MW said on RAP02 have emailed NT to check management regime. Project in this area to break up bramble and encourage heathland regeneration.

GD has been looking at internal reports and is working on this in the background too. GD confirmed that information from MW seems to tally, initially at least, with information NE have.

MW asked if the National Trust clarify that their restoration doesn't extend into the area of exceedance, do we take this as there's no ambition to restore, or do we have to look elsewhere for this information too.

MA & GD unsure but will check internally and get back on that point. GD said there are some other documents she's seen, including some from the higher tiered scheme. Hoping between us we can get all the information needed to answer the questions.

KL asked whether the management of the site would count as mitigation. MA mentioned that that management should be happening anyway as part of the management of the site; as we have exceedance of the 1% there is a likely significant effect but that doesn't necessarily translate to adverse effects on site integrity. We need to understand what's in those areas of exceedance, is it qualifying habitat (or meant to be qualifying habitat) or is it site fabric that is unlikely to ever become qualifying habitat because of it's condition & location.

MW queried whether there would have been mapping of the SAC in the first instance that we could use to understand where the qualifying features are meant to be. GD said she would

check with her colleague as she has a map but needs to double check the information. Resolution of mapping data isn't detailed enough on designated sites viewer for the level of detail we need.

ACTION – continue to progress with background research on Cannock Chase.

Cannock Extension Canal:

MW discussed summary of findings so far. Water quality data sent through from Canal and River Trust (Charles Hughes) which we're very grateful for. Data is only from 2021 and 2022; not the most up to date. Information we have suggests that the canal is likely nitrogen limited. CRT are not sure as there are other factors at play other than the 16:1 Redfield ratio.

MA pointed out the ratios in the summary document were the wrong way around. Double checked the ratios and think it is likely nitrogen limited based on the ratios.

MW said that the CRT indicated that the main concern was the runoff and discharges into the Canal.

GD had read an internal document about standing water habitats. Need to have more of a think about N and P limitation.

MW CRT said that nutrient levels are likely indicative of an oligotrophic system as nutrient levels are generally low. MW undertook a site visit and clarified with both the CRT and other ecologists, and the floating water plantain is the submerged type rather than the floating type.

Statement of Common Ground

KH said that EF had pulled together a draft SoCG. Would be useful if we could agree the majority of the wording in the SoCG. Checked that other parties had a chance to review the document.

GD said NE have comments from PH, MA and herself. Just needs to liaise with all before responding more formally.

JM indicated they would submit in Autumn (i.e. up to the end of November). Working with a period of c.6 weeks to move forward and complete the work. Asked whether there is anything Local Authorities could do in a bespoke manner to resolve the issue to let them know. KH responded that we don't know what the effects are yet and whether we will need to do anything at all.

AY wanted to know whether Cop Mere can be screened out as it's not within 200m of an A or B road. Paragraph 14 needs to be amended, moved up into the bullet point list of Paragraph 13.

EF Paragraph 14 sets out the sites taken forward for Sweco to assess. Wasn't scoped out at the Middlemarch brief stage, but take forward by Sweco. Sweco have scoped it out based on no exceedance. KH reiterated that. AY clarified that in terms of harm that it has been scoped out, KH agreed this was the case.

No further comments on SoCG.

4. Actions for Next Meeting

All to continue with progression of understanding adverse effects on site integrity for Cannock Chase SAC and Cannock Extension Canal SAC.

NE to send back comments on the SoCG.

Walsall to be included in meetings given they are in close proximity to the Cannock Extension Canal. Technical working group meetings also being progressed separately.

5. Date of Next Meeting

14th November 2024 at 13:00 (Microsoft Teams). Invite sent by Edward Fox.

6. AOB

MW sent Rochdale Canal SAC information to GD as Suzanne Wykes (Cannock Chase Ecologist) has found the HRA for the Greater Manchester Places for Everyone Plan (not HS2 as we initially thought). MW has sent to GD and NE for review.

MH queried when Sweco report would be finalised. DP confirmed it would likely be next week (w/c 21st October).

Meeting Closed.

AQ Steering Group Meeting Notes – 14th November 2024 – MS Teams

Attendees:

Kelly Harris (KH) – Lead Planning Manager – *South Staffordshire District Council (Chair)*

Matthew Wall (MW) – Senior Planning Ecologist – *South Staffordshire District Council*

Jemma March (JM) – Interim Planning Policy Manager – *Cannock Chase Council*

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Gillian Driver (GD) – Senior Officer – *Natural England*

Marian Ashdown (MA) – Principal Officer, Flexible Casework Team – *Natural England*

Damian Pawson (DP) – Technical Director Air Quality – *Sweco*

Suzanne Wykes (SW) – Countryside Ecology Officer – *Cannock Chase Council*

Neville Ball (NB) – Planning Officer – *Walsall Council*

Edward Fox (EF) – Strategic Planning Team Manager – *South Staffordshire District Council*

Samantha Cheater – Environmental Consultant – Lepus Consulting (Wolv, Sandwell & Dudley)

Megan Mulligan – Planning Policy Officer – Stafford Borough Council

Neil Davidson (ND) - Managing Director Lepus Consulting

Michele Ross (MR) – Planning Policy Manager – Wolverhampton Council

Apologies:

Paul Horswill – Senior Advisor – *Natural England (NE)*

Agenda:

1. Apologies & Introductions
2. Agree minutes of previous meeting
3. Discussion on 'adverse effects on site integrity' for
    a) Cannock Chase SAC
    b) Cannock Extension Canal SAC
4. Statement of Common Ground
5. Discussion on approach to Windfall sites
6. AOB

Summary of Actions Arising from Meeting:

2. Agree Minutes from Previous Meeting

NE to review previous minutes. All others agreed subject to NE review.

3. Discussion on Sites and Adverse Effects on Site Integrity

Cannock Chase SAC:

MW provided an update on progress to-date following last meeting, handing over to NE to elaborate on recent email from GD.

GD found some maps showing the areas subject to the exceedance. For RAP01 most of the area is in site fabric, some is in the area of heathland but the maps don't distinguish what type of heathland it is. The area the exceedance falls within is right next to the road, and heathland is a mosaic habitat so you would expect some trees. Conversations have been had internally with NE on this point, concluding that NE wouldn't want the trees removed close to the road, and so RAP01 can be ruled out of adverse effects on site integrity.

RAP02 is entirely site fabric, so adverse effects on site integrity can be ruled out.

RAP03 there is an incredibly small area of qualifying habitat but NE advise that adverse effects on site integrity can be ruled out because the section of exceedance is so minute.

KH confirmed with NE that there are therefore no adverse effects on site integrity to Cannock Chase SAC, and that this would be updated in the Statement of Common Ground (SoCG). NE agreed.

Cannock Extension Canal:

GD and NE have looked at an internal report but unfortunately that can't be shared. We were looking at whether the canal is N or P limited and there's still some uncertainty around which it is. Looks like the canal is N limited.

MA said that the floating water plantain phenotype is submerged at the Cannock Extension Canal SAC, so likely to be less of an issue. How much of an issue is it going to be given the qualifying feature is submerged.

MW circulated the HRA for the Places For Everyone Greater Manchester Plan to NE which had the same situation we have here, floating water plantain and critical level exceedance from increased traffic levels. A specialist report on floating water plantain [noted post-meeting as 'Ecology of the Floating Water Plantain (Lansdown RV & Wade PM (2003))] states that it is tolerant of a broad range of conditions, and the HRA for the Greater Manchester plan ruled no adverse effects on site integrity because the qualifying feature is so tolerant. After reading the report we drew the same conclusion that acknowledges an exceedance but that we can rule out adverse effects for the same reason.

KH raised that the Canal and River Trust had mentioned inputs to MW who confirmed that the CRT seemed more concerned about the agricultural inputs and other discharges to the canal causing water quality issues than traffic pollution.

SC confirmed that a preliminary draft HRA has been provided for Sandwell, Dudley and Wolverhampton. Queried what the critical load for nitrogen for the extension canal.

GD confirmed it's either 2-10kg/N/year or 3-10kg/N/year.

SC said that the critical load of 10kg/N/year is only used in oligotrophic waters of low alkalinity with no significant agricultural or other human inputs. Having read into the surrounding land uses and agricultural runoff issues, it seems that there is a lot of human influence/runoff into the canal, and queried whether the 10kg/N/year was correct to use?

GD has queried this with NEs specialist. Said to use the 2-10 as a screening mechanism, and when you get to the Appropriate Assessment stage you can discuss any nuances in more detail.

SC confirmed that the Sandwell, Dudley and Wolverhampton HRA had concluded no adverse effects on site integrity based on what MW had said with regard to the tolerance of floating water plantain and the appropriateness of the critical loads.

MA confirmed that she doesn't have any major concerns about concluding no adverse effect on integrity because of the above evidence.

GD stated that because it's submerged, ammonia and NOx are unlikely to be an issue. So, it's more nitrogen deposition and how much would actually then end up in there. We suspect water quality is more of an issue on this site. The report does say it's quite tolerant, although it also said that sometimes there's bit of delay in the plant showing responses to effects, but we suspect if there was an issue we would have seen this over time given the site's proximity to the road.

KH so understanding this correctly, with the bespoke narrative relating to the Cannock Extension Canal, not a broad-brush approach, given the unique situation of the Extension Canal we can conclude no adverse effects on site integrity.

NE agreed with the position; affirming that the conclusion rests largely on the specific ecology of this species and its submerged nature at the Cannock Extension Canal.

<u>Statement of Common Ground</u>

KH stated the last SoCG circulated and updated, but this needs updating to move the sites above into areas of agreement. NE and Partner Authorities confirmed they would be agreeable to this.

KH checked sign off procedures for local authorities.

- South Staffordshire have delegated authority to agree the SoCG.
- GD needs to take the SoCG to her area manager and would update her.
- JM confirmed 28th November for Cannock Chase local plan submission.
- MR confirmed that a report went to cabinet to confirm delegated approval to sign statements of common ground generally. Would need to send the SoCG to the cabinet lead and director.
- KL confirmed Dudley has to take SoCGs through cabinet. Mentioned it may be quicker to get individual letters from Natural England to confirm they support the outcome of the HRA if there's a delay in getting SoCGs signed.
- PM confirmed Sandwell do have delegated powers and would be looking to submit mid-December.

KH confirmed that HRAs still need updating and indicated that NE

ND suggested doing minutes of the meeting and confirming in the minutes that these matters have been discussed, which sets the scene that NE are happy with everything subject to seeing the final detail in the HRAs which would give an Inspector some comfort; particularly when looking at DTC matters to see evidence of working together.

MA suggested if Partner Authorities can send across some wording in a letter then NE can review the content and agree a letter to move forward.

Partner Authorities discussed options for whether individual letters from NE could be used instead of a SoCG if the latter is delayed due to the constitutional agreement process. Partner Authorities will consider the most appropriate course of action but move forward at present with the existing SoCG.

JM queried when other authorities were looking to publish their own HRAs. Wanted to ensure consistency of conclusions and assessment in partner authority HRAs.

MR confirmed Wolverhampton HRA would be published 25th November.

KH emphasised the importance of HRA consultants working collaboratively to ensure assessments align across the local authority plans.

ND agreed to share HRA reports to ensure the approach is similar across consultants, and to ensure the principles are the same.

SC confirmed that the HRA completed by Lepus had been shared with MW to-date.

MA explained that not having extraneous information to justify the assessments is critical, whilst we all agree the bottom line, having consistent reasoning saves having to disagree with specific elements of assessments/reasoning as they come forward.

4. Windfall sites and addressing HRA and increased traffic

KH asked how to deal with windfall applications. For other local plans coming forward they will need to model those additional sites, but for those sites that lie outside of the strategic local plan process, how should windfall sites be dealt with in Development Management? Can we agree an approach?

MA confirmed NE will not be picking this up in development management at all as it can only be dealt with strategically. The air quality project is a snapshot in time, and air quality isn't like nutrient neutrality where there is no threshold, there is a clear 1% threshold for air quality. It will likely take several years for a 1% exceedance to occur, by which time it's likely that local plan reviews, which may/will capture additional necessary allocations for new housing need numbers will have taken place and a HRA will be part of that process.

It's therefore likely that the local plan review process will occur before windfall sites have the chance to result in an increase of 1%; and so they should continue to be dealt with strategically rather than on a site-by-site basis in development management. LPAs can take their own advice on this.

6. AOB

ND mentioned that HRA informs the SA and SEA work, so the outcomes from all of this need to read across into the sustainability appraisal work and the SEA work.

No other AOB from others. No further meeting proposed.

KH closed the meeting thanking everyone for prioritising this project and making time to help us get the project and air quality issues resolved. It's been really nice to see positive working in the way it's happened here.

Meeting Closed.